OBESITY AND GLOBAL FOOD CULTURE

A Cross-Continental Study of American and European Food Related Lifestyle

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Abstract

This paper investigates the drivers and factors of obesity in the US and Europe. The focus on healthy eating and commensal eating with a global proposition aims to build understanding of the relationship between obesity prevalence and personal eating behavior.

The cross-continental research on different food-related lifestyles indicates the contrasting characteristics between Americans and Europeans in social and healthy-eating approaches. The method used was an online survey of 222 participants in the US and Europe, which inquired about the differences between Americans and Europeans in their healthy-eating and commensal-eating behavior by focusing on the relationship between obesity and out-of-home consumption, snacking, eating alone, and cooking. The results support the hypotheses on the various factors influencing obesity in terms of divergent food cultures.

Keywords: Obesity, Global Food Culture, Healthy eating, Commensality, Cross-Continental Analysis

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BMI – Body mass index: Body mass index (BMI, measured in kg/m^2) is the standard population-based measure of overweight and obesity status (Wilding & Wiley, 1998).

FRL – Food related lifestyle: Food related lifestyle explains the mental construct of consumers, which leads to different decision-makings regarding food and its behavior (Chrysochou, Askegaard, Grunert, & Kristensen, 2010b; Grunert, Brunso, & Bisp, 1993).

GDP – Gross domestic product: Gross domestic product is the standard measure of the value of final goods and services produced by a country during a period (OECD/European Observatory on Health Systems and Policies, 2009)**.**

GHG – Greenhouse gas: Greenhouse gasses are chemical compounds in the atmosphere, which cause an increase in heating the land and ocean by allowing the sunlight pass through Earth's atmosphere freely (Doll & Baranski, 2011).

OECD – Organization for Economic Co-operation and Development

SPSS – Statistical Package for the Social Sciences

UK – United Kingdom

US – United States of America

WHO – World Health Organization

1 Introduction

Obesity is not only a disease on its own, but it puts those who suffer from it at risk for many other diseases as well (Simmonds, 1999). Obesity is measured by body mass index (BMI, measured in kg/m^2). In adults, a 25.0–29.99 BMI is overweight grade I, 30.0–39.99 is overweight grade II, and greater than 40 is overweight grade III. Individuals with overweight grades II and III are considered obese, with overweight grade III carrying the morbid obese classification (Wilding & Wiley, 1998).

The obesity epidemic has tripled worldwide since 1975 (OECD/European Observatory on Health Systems and Policies, 2017), and rates are expected to increase even more rapidly in the United States, Mexico and England—though globally as well (OECD/European Observatory on Health Systems and Policies, 2017). To examine this phenomenon, three countries will be inspected.

The obesity rate in American adults is currently 36.2%, although in the early 1970s the rate was only 14% (Cutler, Glaeser, & Shapiro, 2003; World Health Organization, 2017). There are no significant differences by age group (Hales, Carroll, Fryar, & Ogden, 2020), and while there is a clear increase from 1999–2000 and 2017–2018, there is no significant increase in obesity from 2015–2016 or 2017–2018 (Hales et al., 2020). Regardless, the US possesses the highest increase in obesity of any developed country. Cutler, Glaeser, & Shapiro (2003) clarified the case and blamed technical innovations in the food sector that cut time for food preparation in homes by half between the 1960s and 1990s. Meals went from being homecooked to mass-produced, and the families who once cooked their own meals became able to purchase them from markets at more reasonable prices. This situation led not only to a boost in calorie intake but also to a decline in physical activity. These circumstances also caused Americans to have more meals per day than before; people intake more energy when food prices are lower due to the also lower fixed costs of food production (Cutler et al., 2003). To summarize, obesity's rise has been outlined by and related to a changing mobile lifestyle and altered market prices due to technological innovations (D. B. Butland et al., 2007; Cutler et al., 2003). Another explanation for increasing obesity in the US is a lack of regulations. While the European Union has shown a strong attitude against, for example, genetically engineered food, the US did not regulate food law in the same way. Countries with more expansive regulation of food and food delivery systems, like those in the EU, have shown lower obesity quotas (Cutler et al., 2003). The

average obesity rate in the EU among adults in 2015 is 15.9%. The most obese European countries are Malta with 26% and Latvia with 21.3%, whereas the lowest shares are in Romania (9.4%) and in Italy (10.7%) (EUROSTAT, 2016).

An example of the lower share of obesity in the European Union is the case of Austria. According to the OECD (2017), 14.7% of Austrian adults were considered obese in 2015 and with no significant differences between gender groups. Austria is the seventh country with lowest obesity rate among EU (EUROSTAT, 2016). Adulthood obesity prevalence forecasts (2010–2030) predict that 32% of Austrian adults will struggle with obesity by 2030. While Austrians consume 12.7% of their daily total calorie intake from saturated fatty acids (daily maximum 10% recommended), more than a third of the Austrian adult population show deficient daily physical activities. Yet Austria has some of the strictest regulations in Europe regarding trans fatty acids, price policies, and physical activities (World Health Organization, 2013).

Another interesting example is France. The Global Health Observatory designed by the World Health Organization reported that, in 2015, 15.3% of the adult French population was considered obese (OECD/European Observatory on Health Systems and Policies, 2017). Adulthood obesity prevalence forecasts (2010–2030) predict that 25% of men and 29% of women in France will be obese by 2030. France is the tenth country with lowest obesity rate among EU (EUROSTAT, 2016). It has one of the lowest rates of obesity in Europe, although still behind Austria, despite the fact that the French population has the highest total average calorie intake from saturated fatty acids at 14.6%. In addition, the French government has not yet designed regulations for trans fatty acids. Furthermore, France is, compared to Austria, less arranged when it comes to physical activity, national policy documents, and action plans. Another issue concerning obesity is physical activity rate. It is estimated that a third of the French population is insufficiently active with a significant gender distribution of 29.1% of French men and 36.5% of French women (World Health Organization, 2014).

Obesity is not only a phenomenon in the US and Europe—it can be observed worldwide (D. B. Butland et al., 2007). Obesity is already a dominant problem in numerous countries such as Kuwait and Mexico, whereas in Korea and Japan it is not a major issue (OECD/European Observatory on Health Systems and Policies, 2017). The lower obesity rates in Asia may be

attributed to different food-related lifestyles (FRL), national differences in health behavior, and cultural differences (C. S. Levine et al., 2016).

Furthermore, the dilemma does not only exist in adults; obesity is also widespread in children and babies, which is a major health concern. The figure of overweight or obese infants and young children (aged zero to five years) increased from 32 million globally in 1990 to 41 million in 2016 (World Health Organization, 2016). Also, according to the Obesity Update 2017 from the OECD Health Statistics, one in six children are overweight and obese in OECD countries (OECD Health statistic, 2017). Major increases were observed between 1995 and 2005 in the US, the UK and Chile, while the US contends with the highest childhood obesity rate of all (D. B. Butland et al., 2007). In the US, obesity among children more than tripled from 4.2% in 1963–1965 to 15.3% in 1999–2000. In 2011–2012, 16.9% of children in the US were identified as obese, which varies from being highest from ages 12–19 and lowest from ages 2–5 years (Cheung, Cunningham, Naryan, & Kramer, 2016). In comparison, in Austria, a quarter of male teenagers are overweight, while only 15% of Austrian female teens are considered overweight (Curie et al., 2012). A study from 2005–2006 measured the obesity rate of male Austrian children at 9.4% and female Austrian children at 7% (World Health Organization, 2013).

The adult obesity prevalence in France is below European average (EUROSTAT, 2016). The rate of overweight teens and children is also lower than it is in most European countries: 17.7% of French male teens are overweight, while the ratio by female teens is 10.7% (Curie et al., 2012). Generally, a higher distribution in childhood obesity has been observed in industrialized countries than in less-developed nations. It could also be true, however, that childhood obesity is more frequent in households with more family members than in smaller households (Wang & Lobstein, 2006). Further research pointed out the role of media and globalization in childhood obesity. Many of the food advertisements on children's television are for foods that contain high levels of fat or sugars. A survey of ten countries found that the extent of such advertising is narrowly related to higher rates of obesity among children (Lobstein & Jackson Leach, 2009a).

1.1 Problem Description

Obesity is a massive dilemma that needs to be battled immediately. It is not only a problem on the individuals' level but is also a paramount issue on the social and governmental levels (Dobbs et al., 2014; The Economist, 2018). We already know the numerous drivers of obesity. Obesity is fundamentally about the imbalance of food intake and energy outtake (Akkurt, 2012; D. B. Butland et al., 2007; Cutler et al., 2003). In addition to individual drivers, though, external drivers such as negative environmental influences, economic situations, and education can contribute (Anderson-Fye & Brewis, 2017; Barilla Center for Food and Nutrition, 2012; Bomberg et al., 2017; Kim & Basu, 2016; J. Ogden et al., 2013; Barry M. Popkin, 1998; The Economist, 2018). Other authors have shown that globalization, newer technologies, and innovations in the food industry have an influence on increased obesity rates (Lobstein & Jackson Leach, 2009a; Anna Saba, Cupellaro, & Vassallo, 2014).

Although the aforementioned drivers must be acknowledged, it is assumed that there are even further influences on individuals' weights. It is assumed that different food-related lifestyles and commensal eating behaviors may affect humans' weights. Furthermore, we believe that obesity can be determined not only by the amount individuals eat but also how, when, and with whom they eat it (John M. de Castro, 1994; John M. De Castro, 1997; Fischler, 1988, 2011; Masson, Debucquet, Fischler, & Merdji, 2016; Paul Rozin, Fischler, Shields, & Masson, 2006). The fact that Americans, who culturally eat for nutritional or functional purposes, are more obese than the French, who eat not for health but for joy, taste and satisfaction, is striking (Chrysochou, Askegaard, Grunert, & Kristensen, 2010a; Fischler, 2011; Paul Rozin, Remick, & Fischler, 2011).

1.2 Research Objective

The mentioned problem description has motivated the author to approach a cross-continental study among Americans and Europeans to better understand how obesity is being influenced by various healthy eating approaches and commensality. This thesis aims to uncover the differences between American and European individuals' healthy eating approaches and how their commensal eating behaviors vary. Following, we intend to understand which "eating personality" tends to be more obese according their food-related lifestyles. Opposed hypotheses

for this dilemma, from John M. De Castro and Claude Fischler, have been underlined. Castro believes that individuals who eat more commensally tend to be more overweight, whereas Fischler found that commensal eating is healthier and leads less often to unhealthy weight levels than eating alone does (J. M. De Castro & De Castro, 1989; John M. de Castro, 1994; John M. De Castro, 1997; Fischler, 1980; Fischler & Masson, 2009). Our hypotheses about obesity and eating behavior are that cooking may prevent obesity, whereas out-of-home consumption, snacking and eating alone may promote obesity.

We will discuss and understand these hypotheses with a questionnaire and conclude results regarding the healthy and social eating habits of individuals. Supported by the existing literature, we seek to define the major differences between the prevalence of obesity in the US and Europe.

1.3 Research Questions

According to the problem description and research objective, the following research questions can be derived:

- RQ 1: *Are there differences between American and European individuals in respect to their healthy eating orientation?*
- RQ 2: *Do American and European individuals differ in respect to commensality?*
- RQ 3: *Are individuals who behave more commensal more prone to being overweight/obese?*
- RQ 4: *Are idealist consumers less overweight/obese than pragmatist consumers?*

2 Drivers of Obesity

Obesity is a major global issue. It occurs due to higher-than-normal levels of fat accumulation. According to the McKinsey Global Institute, obesity is one of the principal global social burdens generated by human beings, ranking in the third position after smoking and armed violence (Dobbs et al., 2014). As listed in the introduction, there are numerous negative effects of obesity.

Firstly, it is crucial to underline the increasing individual health issues regarding obesity. Obesity is measured by body mass index (BMI, measured in kg/m^2). In adults, a 25.0–29.99 BMI is overweight grade I, 30.0–39.99 is overweight grade II, and greater than 40 is overweight grade III. Individuals with overweight grades II and III are considered obese, with overweight grade III carrying the morbid obese classification (Wilding & Wiley, 1998).

A BMI-index higher than 25.0 can cause non-insulin-dependent diabetes mellitus, gall-bladder disease, insulin resistance, breathlessness, impaired fertility, cancer, and more. Obese individuals even carry a higher risk for psychological matters such as depression, eating disorders, and body-shape dissatisfaction (Lobstein & Jackson Leach, 2009a). Yet it does not end there. In addition to individual struggles, obesity harms governments and the environment to a serious degree (Dobbs et al., 2014; The Economist, 2018). To elaborate, obesity costs 2.8% share of the global GDP and is an increasing trend. In the exceptional case of the US, obesity has the second-highest negative impact at $633 billion a year and 4.1% of the GDP (Dobbs et al., 2014).

Another dilemma is the environmental aspect of obesity. Strongly linked to obesity is meat consumption (The Economist, 2018). Red meat is the food group with the highest environmental input and is the least-recommended food group for a sustainable healthy diet. In turn, the high demand for red meat, especially in the US, exponentially increases meat production. Global stock farming for food production uses 33% of all legume production for its nutrition (BCFN, 2011). A further issue is the production of palm oil, which destroys the living habitat of orangutans. Palm oil is an important ingredient in convenience food, snacks or cookies. These production systems not only cause major decreases in global animal diversity and plant life on earth, but they also cause enormous increases in GHG emissions and decreases in global water stock (Green, Milner, Dangour, Spadaro, & Wilkinson, 2015).

These complications elaborate why we must be urgently dealing with obesity. Yet, to battle obesity, we must first build further awareness. Before that can be done, however, we must define the drivers of obesity.

2.1 Individual Drivers

Obesity is a disease largely caused by environmental, economic, and individual factors (Semerci, 2004). It occurs mainly due to regulation problems with fat accumulation in cells. Individuals of a normal weight possess the regulation system to prevent the over-accumulation. For individuals with obesity, this coping system does not function correctly, and further fat levels of cells become overweight, which often causes obesity to skyrocket. It is proven that this type of regulation may be genetic. Other physiological explanations of hunger and regulation issues regarding the storage of fats and carbs may be hereditary (Altunkaynak & Özbek, 2006). Those in possession of these genes, OB genes, have shown several symptoms of diabetes 2. Such individuals are incapable of feeling saturated despite the fact that they eat in higher amounts than normal-weighted individuals (Bouchard, 2001).

Obesity is simultaneously caused by the excess of energy intake and the lack of energy expenditure. The higher energy intake is based on the personal choices and eating habits of an individual, which may be understood by examining them through their (un-)healthy eating orientation. Some follow a healthy and balanced diet by studying health information and building awareness, whereas a different set of factors are more crucial for others (Chrysochou et al., 2010b). However, food means more than nutrition for many people. For instance, eating behaviors may be familiar, cultural, social, and emotional (Fischler, 1980; Paul Rozin et al., 2011). These factors can lead to higher food intake, more accumulation of fat, and obesity (Hamburg, Finkenauer, & Schuengel, 2014).

The second imbalance dilemma of obesity is lack of energy expenditure or the lack of physical activity. A lifestyle related to obesity is the sedentary lifestyle, which causes major decreases in energy output (Akkurt, 2012). Since obesity treatments aim at creating a negative energy balance, the importance of physical activity is immense. In order to cultivate the negative energy balance, daily exercise of 200 kilocalories is recommended at minimum and should be

supported with a diet restriction of a minimum of 500 kilocalories. Individuals with obesity, however, consistently struggle to maintain their motivation for physical activity. For this reason, exercise should consist of people's favorite activities (Akkurt, 2012).

In addition to the described individual drivers, mental drivers also exist. These consist of several physiological obstacles, namely a lack of motivation, continuing physical activity, and diet restrictions, as well as depression and numerous eating disorders. Adults with depression in particular are more likely to struggle with obesity than adults without depression. Depression leads to other mental problems such as body image dissatisfaction, weight-related stigma, and discrimination. Such individuals often use food as their primary coping instrument. For instance, one third of obese women with binge eating disorder have also been found to struggle with depressive disorder (Nigatu, 2015). These emotional eating habits then lead to higher risks for obesity.

2.2 Environmental Drivers

Obesity has become an epidemic in the last thirty years and is projected to continue its drastic rise. It is widely understood that obesity occurs only as a result of a higher energy intake and a lack of physical activity, which is fundamentally true. However, obesity is also an issue of environmental factors (Gedik, 2003a). The main environmental drivers for obesity are based on the food culture of certain society. This includes the differences in geography and in commensality. Geography defines the availability of food and the variety of food (Swinburn et al., 2019). Not only the content of food plays a massive role in obesity, but how and with whom they eat. Globalization is another environmental factor for obesity. Our eating habits has changed due to urbanization and sedentary lifestyle in terms of obesity hugely (Anderson-Fye & Brewis, 2017; Cutler et al., 2003; P. Rozin, Fischler, Imada, Sarubin, & Wrzesniewski, 1999; Sproesser et al., 2019).

Food culture is one important environmental factor of obesity. Obesity rates in individuals from different countries and continents vary dramatically. The US, for example, has an obesity quota of 36.2%, while France's is 15.3% and in India's only 3.4% (Cutler et al., 2003; Sproesser et al., 2019; World Health Organization, 2017). Despite the fact that France struggles less with

obesity than most countries in Europe, the WHO (2017) reported that France is one of the European countries with the highest fatty acid intakes (World Health Organization, 2014).

This illustrates an applicable example for the following statement: obesity is not only dependent on what people eat but also on how, when, how often, and with whom they eat (Chrysochou et al., 2010a; Fischler, 1988, 2011; Masson et al., 2016; Paul Rozin, 2005; Paul Rozin et al., 2006; Sproesser et al., 2019). Food culture plays a massive role in what we eat and how. It is a culture filled with numerous symbols and norms which have but little scientific explanation. These norms can influence individuals in terms of their mindsets and life goals, which in turn influence their food related lifestyle (FRL) deeply. The way food culture varies among different countries determines societal eating behaviors largely by setting FRL rules. FRL includes every behavior that has to do with food. The term was first introduced in the mid-1990s by Klaus Grunert (Grunert et al., 2011). Five quality aspects of the product have been found to contribute to an FRL: purchasing motive, cooking method, ways of shopping, and the consumption circumstances (Chrysochou et al., 2010b; Grunert et al., 2011; Pérez-Cueto et al., 2010; Thøgersen, 2017). Considering these dimensions can significantly affect our health and, as a result, we observe higher or lower obesity prevalence in individuals (Chrysochou et al., 2010a). We will focus further on the FRL in detail in chapter 3.

People tend to obtain FRL through eating rules and laws on a cultural level within their community. Such rules are mostly unwritten but are morally known and followed by most people in a society. These systems often represent some foods as bad or unhealthy. For instance, some Muslims avoid eating pork because they have the specific norm in their mind that it is unclean. Culture can affect more than our food values, too. In many countries in Africa, overweight women are more attractive, whereas in Western countries normal-weighted women are seen as attractive. There are many systems that push societies toward obesity either directly or indirectly. These situations help us understand the importance of culture and tradition in individuals' health (Fischler, 1980; Honkanen, Verplanken, & Olsen, 2006). Claude Fischler et al. also understood the significance of tradition, food culture, and social eating habits and researched it several times. These factors have been collectively dubbed commensality. Commensality describes the practice of eating together or a social group that eats together (John M. de Castro, 1994; John M. De Castro, 1997; Fischler, 1980, 2011; Paul Rozin, 2005; Paul

Rozin, Fischler, & Shields-Argelès, 2012; Sobal & Nelson, 2003; Thøgersen, 2017). Commensality and food culture will be analyzed in detail in chapter 4.

Another environmental dilemma concerning obesity is cultural rights and the lack of access to healthy food. Many tribal societies live in resource-limited regions of the world (Swinburn et al., 2019). These regions do not manage a food supply chain system, which is a crucial aspect of the transport and availability of sustainable food. Sustainable food, in this case, refers to the low–calorie, fresh, and healthy food that is recommended for a healthy diet. If individuals cannot access such food, they are more likely to suffer from being overweight or obese (Barilla Center for Food and Nutrition, 2012; Swinburn et al., 2019). With basic instinct of survival and due to uncertainty of availability of food, humans tend to store as many calories as possible. Yet, food is for some abundant. We eat regular meals and we sometimes snack. Therefore, it is in big importance when we consume food. This situation makes people to overconsume. This leads not only to overweight and obesity, but also lifetime diseases (Grippo et al., 2020).

The continuous increase in and demand for new technologies and innovations affects our daily lifestyles and habits, often negatively so. Time spent watching television, or using the smartphone, computer, or tablet can cause a major decrease in physical activity. And sedentary lifestyles hurt children and adults alike (Gedik, 2003a; Lobstein & Jackson Leach, 2009b). Urbanization in particular brought with it many negative effects, beginning with unhealthy diets. Urban diets tend to consist of higher amounts of superior grains, foods that are higher in fat, animal products, sugar, and processed foods than rural diets are (Barry M. Popkin, 1998). Additionally, this makes for people very easy to take further calories. A little snack can sometimes have more calories than a regular meal (Grippo et al., 2020). Sedentary forms of employment are another negative effect, as is the increased use of cars, easy access to shopping centers, and many more that cause people to limit or lessen their physical activity. This situation leads to less energy outtake, an uneven kilocalorie balance and at least partially explains the reason for increases in obesity (Gedik, 2003a; Lobstein & Jackson Leach, 2009b; Sproesser et al., 2019).

Another massive industry linked to obesity is the food system. One reason for this is the increased availability of take-away food and big chain restaurants (Anna Saba et al., 2014). Almost every restaurant offers home-delivery services—and some even drive-thru services—

so that people do not have to be physically active at all. People can now even acquire groceries online. Although this system is not yet common in Europe, the widespread use of it in the US was measured in a survey by the Food Marketing Institute. It found that 49% of US consumers purchase consumer packaged goods, which are daily consumed goods such as food, beverages or tobacco. This is expected to rise to up to 70% by 2022. And by 2025, online grocery will comprise 20% of all grocery retail in the US, which will accrue approximately $100 billion in consumer sales (The Nielsen Company, 2018). Figure 1 shows the increase in take-away food between 1962 and 2002.
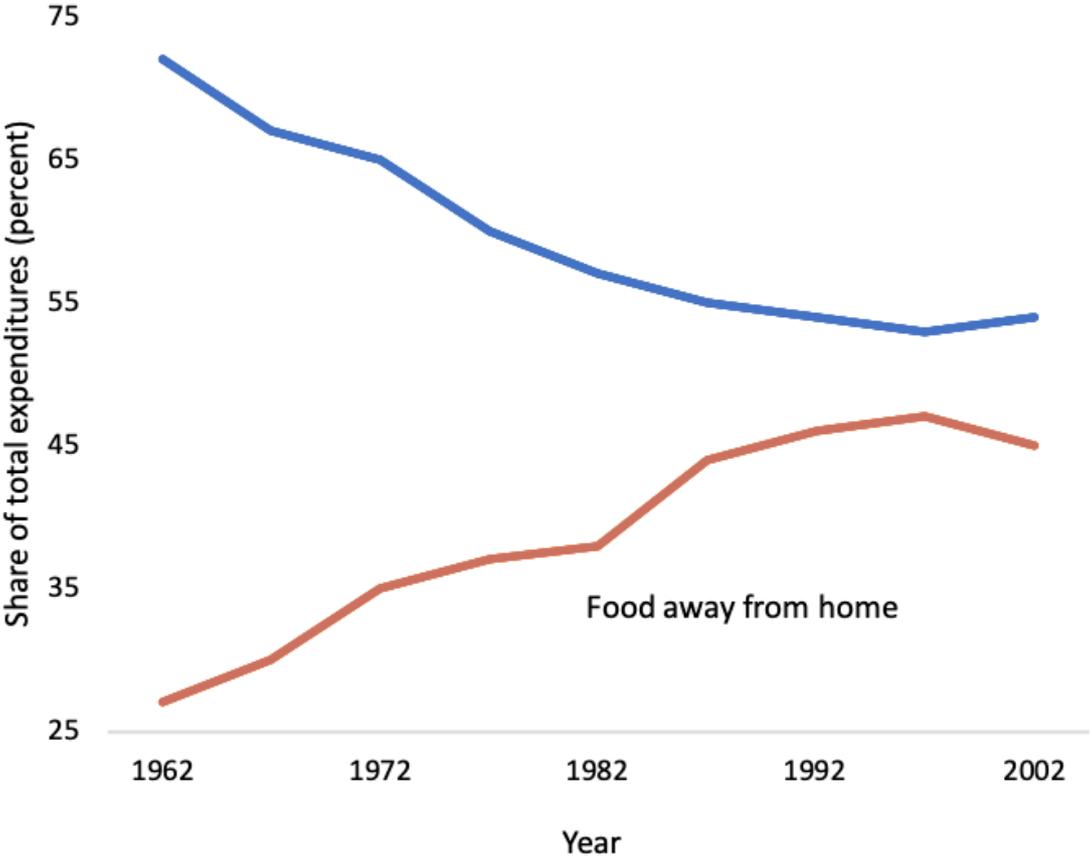
Figure 1: Change in trend of total food expenditure (%) in US population, i.e. food purchase for more vs. food purchased away from home, own representation based on Lobstein & Jackson Leach, 2009.

2.3 Economic Drivers

A majority of the relevant literature assumes that obesity is a problem for those with lower incomes and less education (Darmon & Drewnowski, 2015a; Lobstein & Jackson Leach, 2009a;

Tremmel, Gerdtham, Nilsson, & Saha, 2017). Rapid increases in obesity began in the early 1980s with industrialization and the rise of easy access to inexpensive food. There was accordingly a higher prevalence of this food in higher-income countries (Swinburn et al., 2019). Today, obesity has become more of an obstacle for low-income and developing countries (Chrysochou et al., 2010b). Between 1990 and 2010, obesity distributed throughout developed economies by 17% whereas in developing economies it distributed by 90% (Dobbs et al., 2014).

The most substantial economic obesity problem is the paradox of lower income and poverty. Due to lower overall purchasing power, individuals from lower-income segmentations lack basic requirements such as education, housing, food, and more (Barilla Center for Food and Nutrition, 2012). The situation in the US lets us understand the link between poverty and obesity clearer. The US is worlds one of the wealthiest countries, yet their obesity rate is one of the highest. In contrast to international trends, the more poverty-dense a country is, the more prone the obesity is in a social group (J. A. Levine, 2011). This is called "poverty-obesity paradox". As Bentley et al. (2018) show, there is a strong inverse correlation between obesity and income and diabetes and income. The lower the income the higher the share of obese population and population with diabetes. It has developed especially within the past 30 years and has peaked in the US in 2015 (Bentley, Ormerod, & Ruck, 2018). In high-income countries such as US, obesity disproportionately affects the people of lower-income class. Poorer households in developed countries are more likely to have higher BMI. This phenomenon is called the "reverse gradient". Likely to US, also in Europe, individuals from lower-income households tend to have 10-20% further obesity rates (Bentley et al., 2018). Yet not only the poorest social class gets unhealthier, but also the middle class. Haspel (2018) elaborates it further. She underlines that poverty is not the only main primary driver of being obese. The data from 2011-2014 shows that more middle-income individuals are more obese than lower income individuals. Middle socio-economic class is also poorly affected due to their academic status, gender and race (Haspel, 2018). To illustrate, among white women in the US between 2011 and 2014, 42.5% of the lowest class are obese, whereas 42% of the middle class struggles with obesity. Yet, by men, the lowest social class has interestingly the lowest obesity prevalence with 31.5% (C. L. Ogden et al., 2017).

Another serious economic driver of obesity are the food deserts. Food deserts are poverty-dense areas, in which accessibility to fresh nutrition is abated (J. A. Levine, 2011). Poverty leads to residential segregation and land-use zoning. Due to this, individuals of the lowest income live

in food deserts and have to struggle with lack of healthy, fresh and nutritious food. Following food deserts push individuals to purchase their food from outlets and convenience stores with easier access (Bentley et al., 2018). As a result, we obtain an excess of fast food and processed foods, which contains higher kilocalories than fresh natural food (J. A. Levine, 2011; Swinburn et al., 2019). This leads to higher saturated fat and sugar intake, which not only results with overweight and obesity, but also is positively correlated with diabetes (Bentley et al., 2018). In 2011, 43% of US citizens tackle with food deserts, while 18% of lower-income class does not have easy access to convenient stores (Bentley et al., 2018; J. A. Levine, 2011).

Yet, the negative outcome of diverse income levels goes further. Not only the difference in literal income causes higher obesity prevalence, but also the degree of inequality. Lobstein & Jackson Leach (2009) measured this using income distribution criteria such as the Gini index. An analysis of 22 countries shows a significant positive correlation between Gini Index and adult obesity level. Figure 2 illustrates the issue further. The relationship of obesity rate and income inequality is even greater if the data is weighted for population size (Lobstein & Jackson Leach, 2009a).
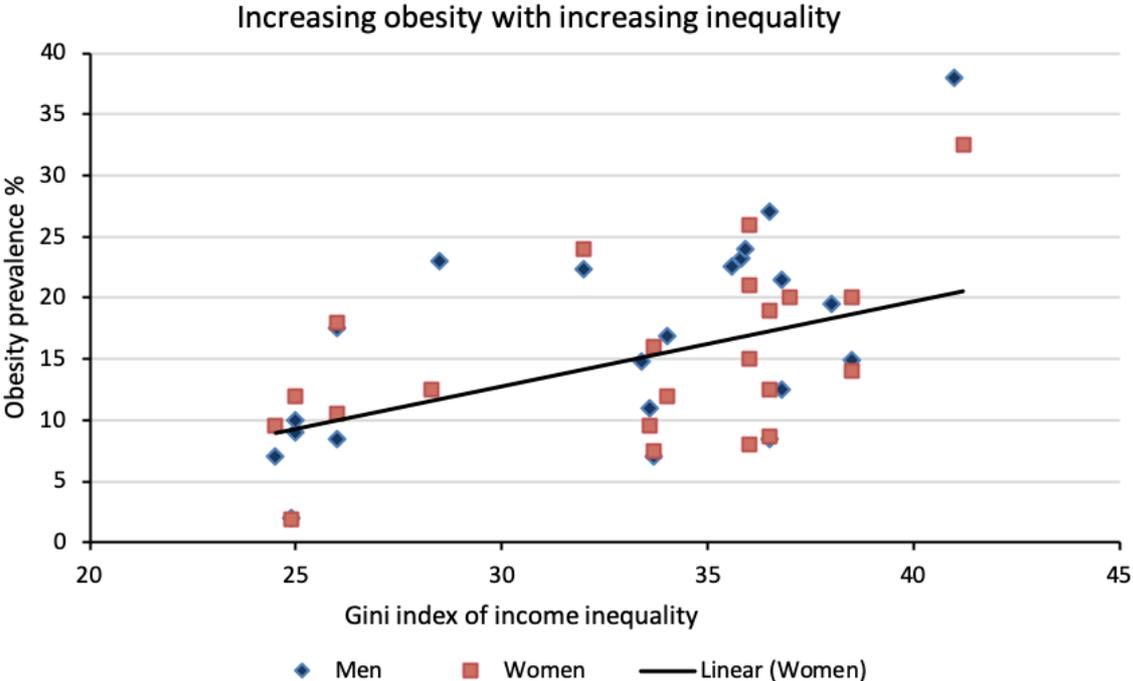
Figure 2: Increasing obesity prevalence with increasing inequality, own representation based on Lobstein & Jackson Leach, 2009.

Food costs can also influence the diet quality of individuals and indirectly cause obesity because the lower-income group is only able to afford lower-quality foods (Darmon & Drewnowski, 2015b). According to Darmon & Drewnowski (2015), the price-quality gap is explained by the fact that purchasing and maintaining technologies that produce long-shelf-life products is less expensive than producing and transporting health foods. Furthermore, the price of low-calorie healthy food is increasing, meanwhile the price of low-cost calories are decreasing and getting easier to afford (Lobstein & Jackson Leach, 2009a). Figure 3 elaborates the price changes further and illustrates the percentage change in prices in the US between 1985 and 2000. The low-cost calories used in production such as sugars, fats, sodium, and salt not only increase the kilocalories per product but also ensure a longer preservation period. Because of the inexpensive calories, these processed foods have less nutritional value and contribute to lower-quality diets. Consuming these foods lead to problems both for individuals and the environment. For this reason, those from lower-income factions struggle with more negative health outcomes than those from higher-income factions (Darmon & Drewnowski, 2015b).
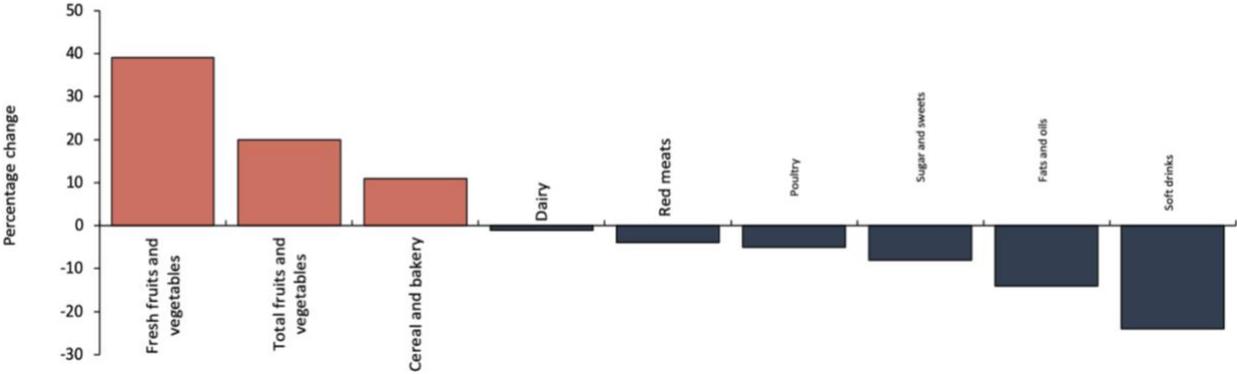
Figure 3: Changes in food prices differentially affecting dietary components in the US between 1985-2000, own representation based on Lobstein & Jackson Leach, 2009.

A study from Barilla Center for Food and Nutrition (2012) analyzed the consumer price of a sustainable diet in several countries. The contributed countries, the US, France, the UK, and Italy, show very similar results. The price per edible gram and per average serving in low-calorie sustainable foods are less expensive whereas the price per calorie of these foods is more expensive. Transitioning from a high-energy-density diet to low-density diet costs around 25% more. One hundred additional grams of low-energy foods can cost daily up to €0.21-0.33 more. A sustainable lower-calorie diet would cost €2-4 less if meat prevalence decreased (Barilla Center for Food and Nutrition, 2012). There are numerous studies that examine the costs of

healthier and more sustainable diets. However, we cannot conclude that a healthy diet that prevents or overcomes obesity is more expensive. Table 1 shows the different food prices per 100 kilocalories in the UK in 2004.

	Price per 100kcal
Margarine	2p
Lard	2p
White bread	3p
Custard cream biscuits	5p
Sweet tea	8p
Chips	8p
Chocolate	10p
Fresh lean pork	14p
Carrots	15p
Bananas	15p
Apples	22p
Cabbage	27p
Tomatoes	77p
Lettuce	1,22
Bagged watercress	10,7

Table 1: Food prices per 100 kcal in the UK in 2004, own representation based on Lobstein & Jackson Leach, 2009.

Still, there are studies that outline the effect of the food measurement system on price. Foods lower in calories, like fruits and vegetables, may be more expensive when the price is measured per calorie. Less healthy foods are higher in calories than healthier foods, and this may lead to the low price per calorie (Barilla Center for Food and Nutrition, 2012; Carlson & Frazão, 2012). Thus, fresh foods may be less expensive when measured on the basis of average portion size. Due increased saturated fat, added sugars, salts, sodium, and protein, some foods are recommended to be consumed in smaller portion sizes, which causes them to be affordable when measured by average portion size (Carlson & Frazão, 2012).

Obesity in low-income social groups can in part be explained by food insecurity. In particular, those who have been concerned with having enough food for themselves and their families carry a higher risk for obesity. In the US, individuals reporting food insecurity are more likely to struggle with obesity. An effect of poverty and food insecurity is a shift toward a more meat-based diet (Thøgersen, 2017). Households receiving support from governmental food assistance programs also tend to overconsume (Dinour, Lauren M; Bergen, Dara; Yeh, 2007). It is also

true, though, that many factors can individually and collectively determine a food-insecure individuals' health status. Dinour et al. (2007)'s conceptional framework illustrated these factors: if individuals are negatively influenced by physiological, economical, physical, environmental, and familiar factors, the likelihood that they will be overweight or obese increases.

An additional obstacle is a lack of food supply chain management in several developing countries (Barry M. Popkin, 1998). Developing nations have worse transportation and marketing systems for food, which means fresh food is not available during periods of seasonal shortage. These are mainly lower-calorie and sustainable foods that are less expensive when measured on the basis of average portion size (Carlson & Frazão, 2012). This pushes low-income societies to nourish with high-calorie products instead because they are more accessible and affordable (Thøgersen, 2017). Lobstein & Jackson Leach (2009) briefly studied the effects of the global shift toward obesity. They concluded that obesity in developed countries differed from obesity in developing countries. In developed countries, there is a higher prevalence of obesity among poorer populations, whereas the situation in developing countries is the reverse of that; in less-developed countries, increasing obesity rates occur in individuals from higher-income groups (Lobstein & Jackson Leach, 2009b).

Availability and lack of purchasing power over healthy food is not the only economic factor that leads to obesity. For instance, obesity in low-income countries causes major economic burdens in public health care services (Bomberg et al., 2017; Tremmel et al., 2017). Healthcare instructions are not as available as they are in developed countries. This system, in turn, leaves individuals with a lack of numerous treatments, including some for obesity. The economic dilemma of obesity has the largest effect on the poorest. It will affect 8.5 billion people by 2030 negatively, who mainly come from low-income societies (Swinburn et al., 2019).

An additional complication is the high medical costs per obese individual. Obesity causes extra risk factors for heart diseases, cardiovascular disease, hypertension, type 2 diabetes, congestive cardiac failure, glucose tolerance, hypoventilation syndrome, mental diseases, and cancer. Bomberg et al. (2017) observed that one fifth of all cancer patients are overweight or obese. It is not surprising, then, that obese individuals need additional medical care (Bomberg et al., 2017; Simmonds, 1999). Depending on the obesity class, this additional care regularly costs anywhere between 31% and 86% more than normal-weighted individuals' healthcare costs (Tigbe, Briggs, & Lean, 2012). The obesity cost for the country that struggles most with obesity,

the US, was $147 billion in 2008 alone, and treatment costs there are estimated to increase between $48–$66 billion a year (Bomberg et al., 2017).

Chrysochou et al. (2010a) underlines the role that education plays in obesity. Their research found that individuals with higher levels of education maintain more normal body weights. The level of consciousness and awareness that is required to maintain a healthy diet and food-related lifestyle is only observed in those with a higher education level. Lifestyle behavioral changes in diet and physical activity as a result of knowledge and awareness of how to achieve a healthy lifestyle is further linked to individuals with higher income and education levels (Barry M. Popkin, 1998). One answer for the dilemma is to expand welfare reform and poverty prevention to begin to fill this socioeconomic gap (Dinour, Lauren M; Bergen, Dara; Yeh, 2007).

Lobstein & Jackson Leach (2009) examined the role of higher education in consequences of obesity. They found that obese American adults with lower education levels are 19.3% more likely to have type 2 diabetes. By contrast, only 8.5% of adults with higher education levels are obese. Additionally, 33.1% of highly educated obese adults in the US suffer from hypertension as opposed to 46% of less-educated obese adults (Lobstein & Jackson Leach, 2009b).

2.4 The Influence of Marketing & Food Technology

Today, we all benefit from globalization and new technologies that have been applied to almost every level of daily life. Yet the massive expansion of technology in the late 1960s and the current continued growth of diverse industries bring with them negative impacts as well (Cutler et al., 2003). Increasing industries and higher production capabilities allow for the examination of higher competition. Marketing—and in particular promotional marketing, which includes pricing, positioning, and specific promotional activities like advertising and sponsoring—has been developing since. Figure 4 illustrates the comparison between advertising spends by the food industry and government in 2003-2004 in the UK (Lobstein & Jackson Leach, 2009b).
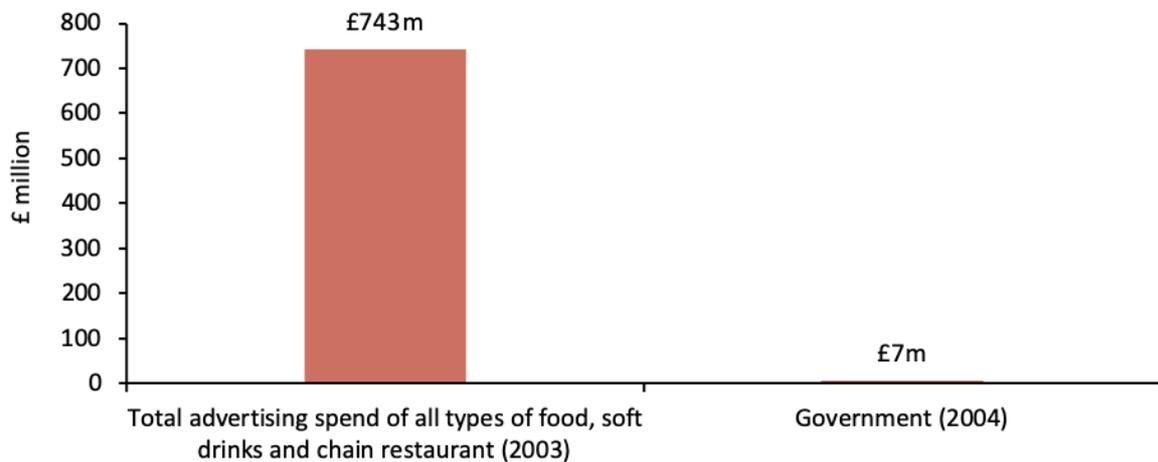
Figure 4: Comparison between advertising spends by the food industry and government, own representation based on Lobstein & Jackson Leach, 2009.

The massive role that food marketing plays in obesity is of great importance to this study (Barilla Center for Food and Nutrition, 2012; Chandon & Wansink, 2012; Lobstein & Jackson Leach, 2009b; Swinburn et al., 2019; Veerman et al., 2011). Promotional marketing like TV advertising sends consumers specific statements about what food and how much of it they should consume. These messages often do not support a healthy, sustainable diet and contribute to weight gain and obesity (Chandon & Wansink, 2012; Lobstein & Jackson Leach, 2009b). In addition, food marketing influences food prices, a factor that determines the rate at which certain foods are purchased and consumed. Marketing communications in their newest forms like "Advergaming" and social media activities also play an enormous role in affecting consumers' eating habits, and this is in addition to the still-effective traditional forms of marketing such as online and in-store as well as in movies, television, sponsorships, and events (Chandon & Wansink, 2012). Due to the more influential marketing instruments of high-calorie food firms, however, people become influenced and "brainwashed" by advertisements even if they are unaware of the influence at the time. This leads to an extremely high prevalence of familiar and attractive food supported by charming packages and clever slogans. Affected adults and children gain weight, become unhealthier, and become overweight or obese by purchasing unhealthy, high calorie but attractive foods. Figure 5 compares the foods we should consume and the advertised food in 2003 in the UK and lets us understand that all meats products advertised were high in fats and all dairy products were high in sugar (Chandon & Wansink, 2012; Lobstein & Jackson Leach, 2009b).

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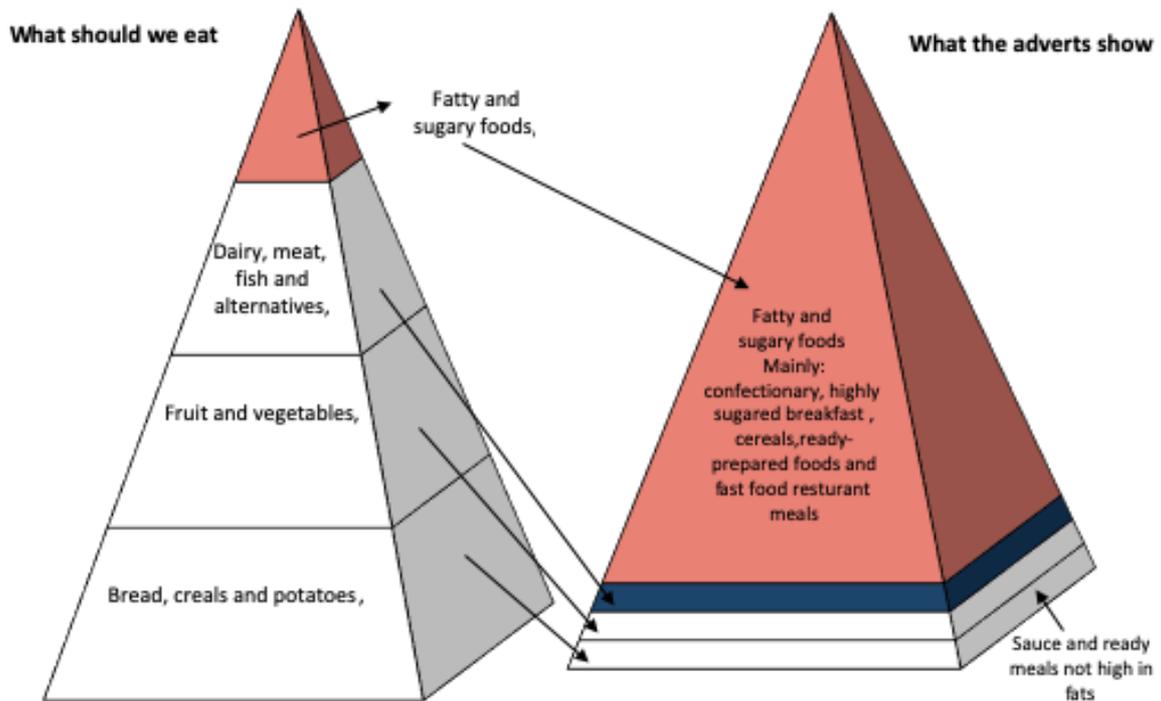
Figure 5: Comparison between the foods we should be consuming and those advertised, own representation based on Lobstein & Jackson Leach, 2009.

Television advertising is an extremely important contributor to children's dietary habits. Veerman et al. (2011) found that food commercials on children's television hold the greatest share of the blame for this fact. For one, 70–90% of all foods advertised on children's television contain high levels of fat or sugars, which leads to unhealthy diets and weight gain (Veerman et al., 2011). For another, children can remember the names of the advertised products and actually prefer the familiar products over low-calorie foods. As a result, they eat more snacks or more processed food, which makes them follow an unhealthy diet and gain weight quickly (Barilla Center for Food and Nutrition, 2012).

Television is not only an issue for children, however: Ogden et al. (2013) compared four different forms of eating based on amount eaten and found that the adults who consume the most food are those watching television. Television decreased the desire to eat with others, whereas social eating demonstrated the opposite result. This can be explained by mindless eating; the more distracted a person is the more food they consume. This is to distract humans not only from hunger but also from the capacity and process of eating (J. Ogden et al., 2013).

Another contributor to obesity is the rise of mass food production and preparation. The food preparation system was traditionally characterized by the transformation of raw agricultural products into edible foods. As a result of the industrialization of the late 1960s, time spent preparing food fell by half (Cutler et al., 2003; Sproesser et al., 2019). By the 1970s, food was able to be made at home, in restaurants, and in factories. The many technological obstacles for mass production of food for consumption were curtailed by rapidly expanding innovations: "modified atmosphere processing" was invented to control the gaseous environment in food storage, hydrogen-peroxide sterilization and stretch-wrap were invented to kill and seal harmful microorganisms, and "freezer burn" was invented to manage moisture and temperature. There were even technological improvements available at the user end. Kitchen appliances such as microwaves and improved refrigerators became commonplace. This introduction of technological changes has made the costs manageable. Mass production means that fixed time costs sink and can be shared by a wide range of consumers. Additionally, mass production has reduced the marginal cost of food preparation by substituting capital for labor, which led to an increase in the amount of food that people consume (Cutler et al., 2003). These foods are predominantly produced with low-cost calories like refined sugar, nutritive sweeteners, corn syrup, high saturated fats, sodium, and salts (Barclay & Brand-Miller, 2011; Darmon & Drewnowski, 2015b; Barry M. Popkin, 1998) that reduce costs and increase shelf life (Barclay & Brand-Miller, 2011; Darmon & Drewnowski, 2015b). Low-cost calories have less nutritional value overall and lead to lower-quality diets (Darmon & Drewnowski, 2015b). The mass production of foods causes individuals to consume a greater number of meals consisting of low-cost calories and higher kilocalories, which in turn contributes to people struggling with obesity.

With the rise of mass food production and preparation, our preferences in snacking has also changed (Cutler et al., 2003; Piernas & Popkin, 2010). Shifts since mid-1990s lead towards further intake of salty snacks, chips and nuts rather than dairy and fruit. Yet not only the content of snack has changed, but also the frequency in our snacking. Piernas & Popkin (2010) underline that in the US over the past 2 decades, the percentage of energy intakes from snacking has increased to 24%. Habits such as late-night snacking, snacking especially on salty snacks and energy drinks, and the increase in snack portion sizes cause further obesity prevalence. A "little" snack may sometimes have more calories than a regular meal (Grippo et al., 2020). Bertéus Forslund et al. (2005) studied that Swedish obese individuals perform six intake occasions per day, from which 29.2% is snacking. Meanwhile, normal weighted people have less intake occasions with less frequency of snacks of 25.5%. Furthermore, obese men and

women reported a significantly higher energy intake than normal weighted people which contains especially sweet, fatty food choices among obese snackers (Bertéus Forslund, Torgerson, Sjöström, & Lindroos, 2005). Figure 6 shows the contribution of snacking to toal energy intake in Sweden between 1997 and 2006 in different age groups. Higher energy intake due to increasing snacking frequency in both males and females leads regardless of physical activity to higher kilocalorie intake following a higher risk in obesity (Bertéus Forslund et al., 2005; Piernas & Popkin, 2010).
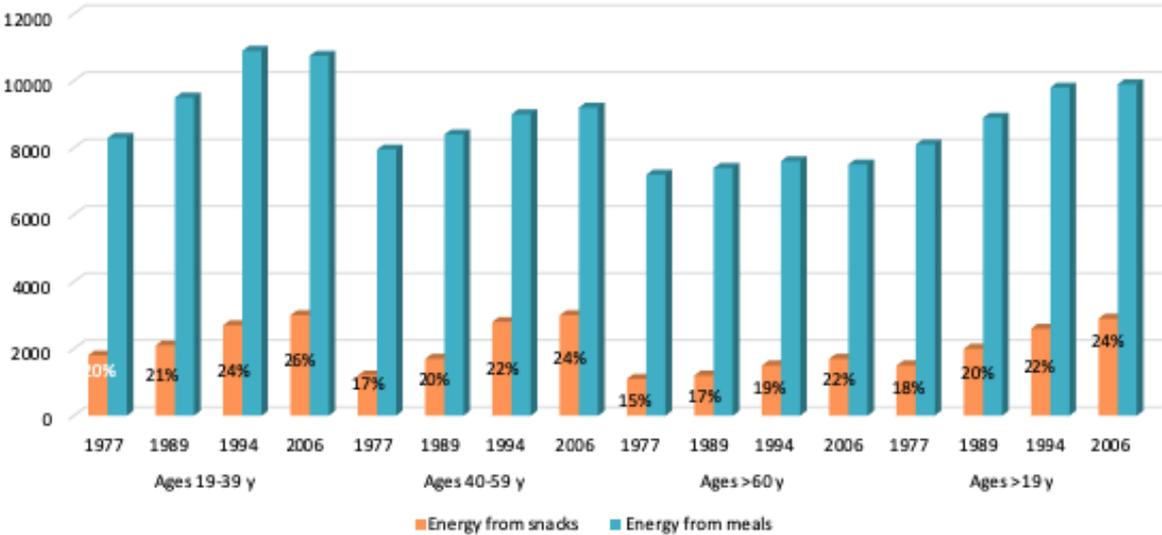
Figure 6: Contribution of snacking to total energy intake by year and age group, own representation based on Bertéus Forslund et al., 2005.

2.5 The Global Transformation of Agri-Food Systems

Another cause of the global spread of obesity is foreign direct investments. Numerous large food processing companies, food retailers, and restaurants have relocated to developing countries to reduce import costs, expand local production, and minimize factors that add to the costs of production. The World Health Organization (2009) calculated that foreign direct investment of the U.S. is $54.7 billion. Simultaneously, OECD illustrates that more than a half of foreign direct investments in eastern Europe are composed of the confectionery and soft drinks industries. There has specifically been a global increase in investment by the soft drink industry and fast-food chains. As an example, Coca-Cola invested $500 million between 1993 and 2003 in Africa and reported sales of over $800 million in 2003 alone. Additionally, Coca-Cola and PepsiCo produce more than half of global soft drinks (Moodie et al., 2013).

Meanwhile, the growth of fast-food chain McDonald's in the developing world is remarkable. From 1991 to 2001, the number of McDonalds's outlets increased from 1400 to over in the Asia-Pacific region and from 200 to over 1500 in Latin America (Lobstein & Jackson Leach, 2009b). Figure 7 elaborates the rise more in detail. By virtue of the saturation of markets in developed countries, global fast-food and drink industries have penetrated the markets in developing low-income and middle-income countries promptly. The nutrition transition with the transformation of agri-food systems of ultra-processed products has increased the obesity prevalence and directly also other diet-related chronic diseases in developing countries (Moodie et al., 2013).
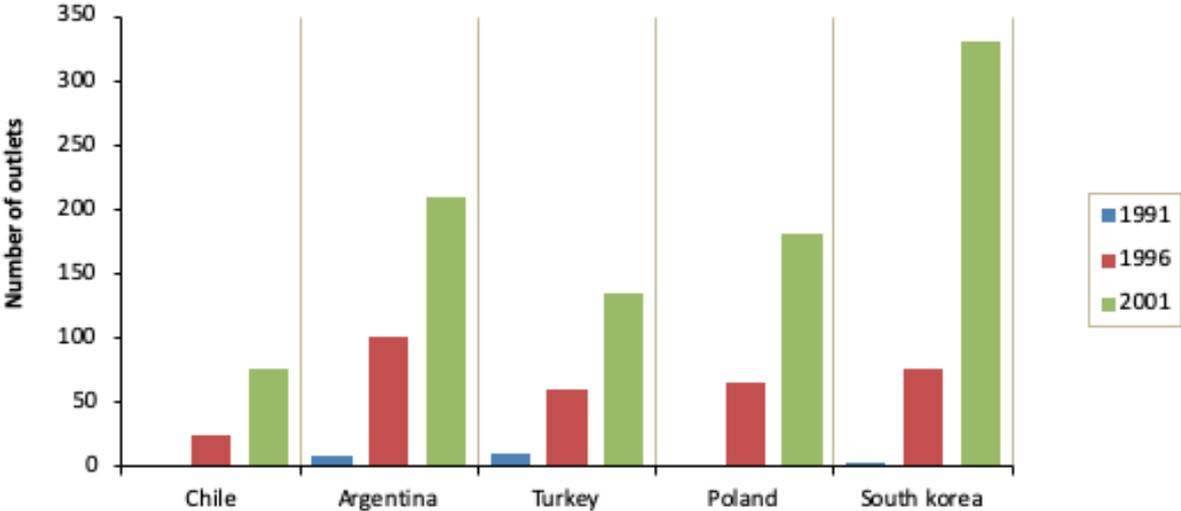
Figure 7: Rise of McDonald's outlets in developing markets, own representation based on Lobstein & Jackson Leach, 2009.

This global transformation and rise of food systems continues with expeditious growth of large production systems and processors, food logistic firms, convenience stores, supermarkets and fast-food chains. Yet the situation has both negative and positive aspects. The main handicap is the impact in agro-processing level and the increasing access to processed food (B. M. Popkin & Reardon, 2018; World Bank Group, 2017). Food processing consist not only simple forms, but also highly extractive forms. These "ultra-processed" foods are problematic for public health (World Bank Group, 2017). Such foods are higher in fatty acids, saturated fats, sugars, sodium and salts, which cause higher energy intake regardless the amount of energy outtake (Cutler et al., 2003). Especially because of the paramount transformation to developing countries, 68% of deaths in developing countries occur from cardiovascular diseases, cancer,

and diabetes, which arise mainly due to false dietary habits (World Bank Group, 2017). Second complication with processed food is how they are marketed. The advertisings lead to appetite control and overconsume, which drives individuals to take higher kilocalories and be overweight or obese regardless physical activity (World Bank Group, 2017).

On the other hand, the global transformation of agri-food systems provides various positive outcomes. Firstly, the costs of food have reduced. Secondly, food has been de-seasonalized, which allows individuals to access some nutrition like meat and dairy easier. Furthermore, the increasing convenience of food preparation systems supports individuals to save time costs (B. M. Popkin & Reardon, 2018).

Agri-foods systems maintain a paramount role in assuring higher accessibility, diversity, and security of food. On account of agriculture research, today 50% of all plant sourced calories come from rice, wheat and maize. Today, fruit and vegetable production are 22% below global population requirement. Yet, without agricultural systems and technology, by 2050 it would be 67% below, the prices would increase, access and diversity would be less (World Bank Group, 2017). The contribution of agri-food systems on agricultural level leans towards the supply issues. Despite that, Green Revolution succeeds to focus a few select cereals in developing countries. Green Revolution results unintendedly with a shift in prices of staple grains relative to other foods emerging higher accessibility to lower-income social class (World Bank Group, 2017).

3 Food-Related Lifestyle and Obesity

Globalization tends to give consumers continuously changing desires—especially in the food industry. A combination of industrialization, individualization, and urbanization over the last 40 years has completely transformed the way humans interact with food through value and lifestyle factors as well as global food trends (Danesi, 2018; Reid, Li, & Bruwer, 2008). The first and foremost trend is that of fresh and nutritious food consumed for the sake of a health-based diet. The interest in food for disease prevention, and for physical and emotional energy support are in higher demand. Another popular trend is the organic plant-derived food phenomenon. Such foods are lower in calories, high in micronutrition, and friendly to the environment and animals. These newer trends have led to significant growth of market segments in the retail sector (Pöchtrager, 2019). Individuals are more mobile and have less free time, which has given rise to the highly prevalent trend of easy and quick food. At the same time, easier access to information has added to consumers' overall awareness of health and nutrition. This contributed to the growth of food, which should not only be easy and fast to prepare but nutritious, healthy, fresh, and tasty (Reid et al., 2008).

The habits of individuals in their FRL are directly linked to their values. The values are defined as individual beliefs, desires and aspirations. These influence individuals' behavior and cognitive processes (Grunert et al., 1993; Reid et al., 2008). Values are of major importance to the understanding and explanation of human behavior – they aid and support lifestyle measurements and studies (Reid et al., 2008).

Lifestyle measurements have also been applied to food products, as elaborated on by Grunert et al. (1993). Using a cognitive structure modeled for FRL, they described the relevant parts of cognitive structure and their relationships by linking food products to existing individual and collective values. The Schwartz value survey also studied values and described them as cognitive representations of three types of universal human requirements: biological needs, social interactions, and societal demands for welfare and survival. Schwartz (1992) specified ten motivational domains, as well: power, achievement, hedonism, stimulation, self-direction. universalism, benevolence, tradition, conformity, and security (Brunsø, Scholderer, & Grunert, 2004). Regardless of the country being tested, the listed values and motivations show strong and meaningful connections to individuals' FRLs (Brunsø et al., 2004).

The ten motivational domains combined with values have built a link between food and values that allows for the introduction of possible FRL elements (Brunsø et al., 2004; Grunert et al., 1993). Figure 8 shows the relationship between the elements that play a role in consumer food behaviors.
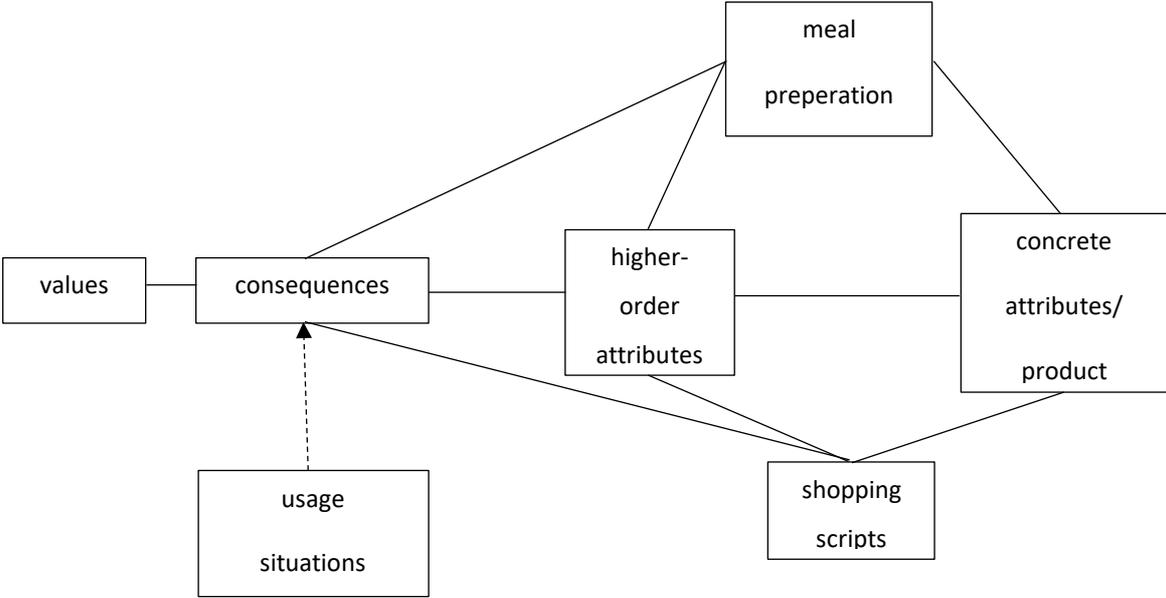
Figure 8: A cognitive structure model for FRL, own representation based on Grunert et al., 1993.

FRL explains the mental constructs of consumers. The individual's relationship between food and value attainment is often indirect. Thus, the usage situation—referring to the frequency, the amount, the ingredients, and the social aspect of a meal—plays a major role in value fulfillment (Grunert et al., 1993; Reid et al., 2008). It emphasizes the differences of a meal eaten alone versus a commensal meal. The effects of commensal eating were studied heavily also by Rozin, Fischler and De Castro. They underlined in their studies the effects of commensal eating on humans' health and especially their body weight. In 1996, Brunsø defined more areas of FRL, specifically twenty-three dimensions that belong to five different areas of FRL. These five areas are ways of shopping, quality aspects, cooking methods, consumption situations, and purchasing motives (Brunsø et al., 2004; Chrysochou et al., 2010a; Grunert et al., 1993, 2011; A. Saba et al., 2019; Thøgersen, 2017). Ways of shopping describes the importance of product information, price, and the use of a shopping list. Quality aspects describe the qualities of food

which are identified as health, price and quality relation, taste, and freshness. The third area of FRL is cooking methods, which is based on the search for new ways to cook like cooking as a family or meal prep planning. Consumption situations provide information about snacking habits and eating during social events. The fifth and the last area of FRL is purchasing motives, which refers to self-fulfillment in food, security, and social relationships (Brunsø et al., 2004; Grunert, 1993; Grunert et al., 2011; Reid et al., 2008; Szakály, Szente, Kövér, Polereczki, & Szigeti, 2012; Thøgersen, 2017).

3.1 Consumer Orientations towards Healthy Eating

The different ways that the five aspects of FRL can be applied have numerous consequences for humans, societies, and the environment (Chrysochou et al., 2010a; Grunert et al., 2011; Thøgersen, 2017). Healthy eating may prevent many diseases such as cancer, hypertension, and diabetes. More common chronic diseases have also been linked to obesity. Obesity causes extra risk factors for heart diseases, cardiovascular disease, hypertension, type 2 diabetes, congestive cardiac failure, glucose tolerance, hypoventilation syndrome, mental diseases, and cancer (Bomberg et al., 2017; Simmonds, 1999). Furthermore, following a healthy and balanced diet impacts the intake of low-cost calories (Chrysochou et al., 2010a; Grunert et al., 1993, 2011; Barry M. Popkin, 1998; Thøgersen, 2017). Low-cost calories refer to refined sugar, nutritive sweeteners, corn syrup, high saturated fats, sodium, and salts (Barclay & Brand-Miller, 2011; Darmon & Drewnowski, 2015b; Barry M. Popkin, 1998). These processed foods comprised of low-cost calories have less nutritional value and their consumption causes lower-quality diets (Darmon & Drewnowski, 2015b).

Based on the paper of Chrysochou et al. (2013), there are four distinct orientations of consumers in modern Western societies concerning (healthy) eating. Chrysochou et al. (2013) call them the indulgent, the controlled, the resigned and the ordinary "subject position", which are explained in detail further below. They use the term "subject position" because the consumers' orientation towards eating is located based on two main dimensions (see Figure 2). One dimension reaches from experientalism versus functionalism and represents the ancient dichotomy of hedonims (i.e. experientialism) versus ascetism (i.e. functionalism). Figure 9 shows the framework of healthy eating discourses.

Experientialism

Idealism ← → Pragmatism

Indulgent   Ordinary

Controlled   Resigned

Functionalism

Principles ← - - - - → Compromises
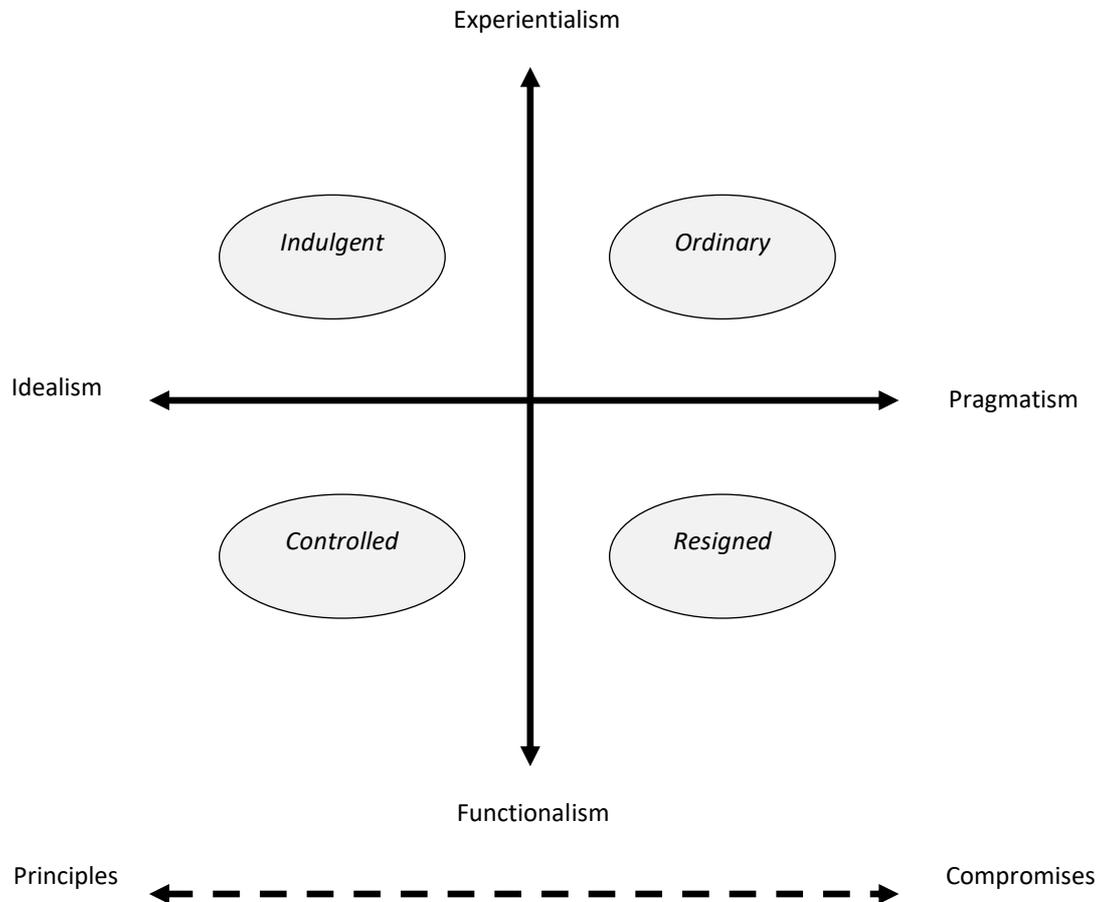
Figure 9: The framework of healthy eating discourses, own representation based on Chrysochou et al., 2010a.

In the functional approach towards food people pursue healthy eating by striving for balanced calorie intake and energy outtake, consuming micronutrition and macromutation in food, and a higher intake of fruit, vegetables, and fish instead of packaged and pre-prepared foods that are higher in fatty acids, sugars, salts, and therefore calories (Chrysochou et al., 2010a; Barry M. Popkin, 1998). In this approach the higher importance of nutrition information and the health function of single food ingredients (fatty acids, vitamins, minerals etc.) has replaced the culinary and experiential approach to food, where the emphasis is on the sensual experience of food and the joy derived from it.

The experiential discourse stands for the culinary and gastronomy values of an individual, which are associated with joy, satisfaction, pleasure, and social engagement as well as eating

for taste, freshness, and quality of meals or food (Fischler, 1988, 2011; Masson et al., 2016; Paul Rozin, 2005; Paul Rozin et al., 2012, 2006)

The nutritional discourse represents the nutritional and functional order of food, where the focus of eating is on bio-medical reasons and disease prevention. Such people may compromise on experiential aspects of food, whereas consumers with experiential discourse may sacrifice nutrition for the joy and taste of food (Chrysochou et al., 2010a).

Or in the words of Chrysochou et al. (2010, 289): "From this perspective eating in modern societies (and possible in most societies) inevitably involves negotiating issues of health with other functions such as taste, pleasure and convenience. Eating thus involves not just a functionalist aspect but also a dimension of corporeal and sensory pleasure, which is culturally instituted (Fischler, 1990)". This is an important aspect that based on the cultural background. Consumers tend to favor a more functional or experiential (i.e. sensual) approach to food.

Consumers leaning towards the experiential approach to food can be expected to sacrifice healthy eating for the sake of the sensory experience of food, where consumers with the functional view of food tend to accept less tasty food as long as its nutritional content is optimal.

The functional versus experiential discourse can be further differentiated by adding the idealistic versus pragmatistic view on eating.

Consumers leaning more towards the idealistic side have strong rules and principles about either their functional or experiential eating habits. Consumers with pragmatic discourses tend to set more compromises regarding healthy eating during their daily lives (Chrysochou et al., 2010a).

The differentiation between experientialism versus functionalism and idealism versus pragmatism leads to four main "subject positions" (Chrysochou et al., 2010a), which are the ordinary, the indulgent, the controlled, and the resigned. The subject positions may or may not represent consumer groups. Chrysochou et al. (2010) describe it as a prevalent orientation in the social discourse about food, which can be seen as typical for specific consumer groups, but it is also possible that consumers show each of the four positions to varying degrees.

The ordinary subject position concentrates on experientialism rather than functionalism. The focus of such consumers is on gastronomy and culinary order. These individuals maintain a balance between indulgence and principles and do not often follow strict diets due to the

culinary principles of their daily life. These individuals then trust only little information about nutrition and strict healthy diets (Chrysochou et al., 2010a).

The indulgent subject position also focuses on the experiential discourse rather than functional. Differing from the ordinary category, though, indulgent individuals have strict rules and principles in terms of culinary pleasure. Such individuals have respect for their food choices and for culinary pleasure. In order to achieve culinary experiential life quality, they are often willing to spend more time and money on food (Chrysochou et al., 2010a).

Unlike the ordinary and indulgent subject positions, the controlled subject position privileges the functional and nutritional aspects of food. Such behavior can be identified by an idealism based on firm principles and rules for healthy eating. Such people seek further information about healthy eating and want to support the information with their personal feelings and knowledge in order to be more disciplined in their health (Chrysochou et al., 2010a).

Last is the resigned subject position, which also prioritizes the functional discourse of eating. In contrast to the ordinary subject position, however, resigned behavior entails a pragmatic rotation between principles and indulgence. This shift is explained by external circumstances such as money, time, and food availability. Another account of this alteration is the lack of necessary personal discipline to apply a healthy diet. Other than the controlled subject position, resigned subject individuals inform themselves of common public information and do not seek additional scientific information about healthy eating (Chrysochou et al., 2010a).

In the next chapter it will be explained what kind of consumer segments Chrysochou et al. (2010) identified in their empirical study based on their theoretical framework.

3.2 Consumer Segments concerning Food and Health

The subject positions describe the motives and values behind FRL; based on those, Chrysochou et al. (2010) interpreted three main consumer groups that are identified by their dominant subject positions. Chrysochou et al. (2010) studied 316 consumers in Denmark in 2009. The

instrument consisted of 16 items of the healthy eating discourses and 6 items of socio-demographic characteristics about the participants.

The first consumer group is called Common, which applied to 56% of the respondents. Consumers identified as commons showed in all four subject positions (ordinary, indulgent, controlled, resigned) moderate orientations (Chrysochou et al., 2010a).

The second consumer group, Idealists, applied to 25% of the respondents. The main characteristics of Idealists are indulgent and controlled behavior. Accordingly, these consumers show low prevalence in the ordinary and resigned subject positions and consequently their behavior is based on the idealistic discourse. "… the Idealists were more interested in health and natural products and were more involved and familiar with healthy foods" (Chrysochou et al., 2010, 293).

The third consumer group, Pragmatists, applied to only 19% of the respondents. In this consumer group, the most forward subject positions are ordinary and resigned. This leads to lower rates in the controlled and indulgent subject positions (Chrysochou et al., 2010a). Chrysochou et al (2010) found in their study that overweight or obese singles with no more than high school education is more likely to be pragmatists.

A further issue is the role of education in obesity. Individuals with higher levels of education were more likely to have normal body weights (EUROSTAT, 2016; Lobstein & Jackson Leach, 2009a). These individuals are categorized as Idealists. The idealist consumer group is controlled and indulgent about its health and food choices, follows certain principles, and knows the importance of self-love and self-care. Additionally, Idealists engage in healthy eating in their everyday lives. Persons with a lower education level, however, have a higher tendency to be overweight or obese. Chrysochou et al. (2010a) categorized such people as Pragmatists. Pragmatist consumers are mostly ordinary and resigned. They are not engaged in principles and rules but in compromises. This proves the importance of education in the application and knowledge of healthy food-related lifestyle choices as a means to prevent or fight obesity.

In addition to academic education, general awareness of what is healthy and sustainable also plays a role in obesity (Chrysochou et al., 2010a; Thøgersen, 2017). The required certain consciousness for a healthy diet and food-related lifestyle is observed only in the higher income group. Behavioral changes in the lifestyle areas of diet and physical activity based on

awareness of what comprises a healthy lifestyle is further linked to individuals with higher incomes and education levels (Barry M. Popkin, 1998).

According to Chrysochou et al. (2010), the idealist consumer group should be healthier and have fewer diseases and less obesity prevalence. Theoretically, eating for nutrition and function, being disciplined about a healthy diet, and following strict principles based on scientific information should push individuals to be healthier. We elaborate on and discuss this hypothesis with a case study focusing on France and the US in the next chapter.

3.3 Cultural Differences in regard to Healthy Eating

We described that eating healthy is perceived differently by individuals because of their goals, values, beliefs, understandings of health, and how they manage the term in their daily food practices (Chrysochou et al., 2010a; Fischler, 2011; Masson et al., 2016; Pearcey & De Castro, 2002; Reid et al., 2008; Paul Rozin, 2005; Paul Rozin et al., 2011).

Differences in healthy eating are not only seen in individuals, however, but also in nations/cultures. Fischler et al. (2008) conducted a survey in which they researched seven thousand people in six countries. These individuals spoke four languages and followed different values and cultures. The multiple-choice questionnaire found striking results. Individuals from the US and UK followed a diet based on nutrition and health information. For them, health concerns were a major issue. In addition, Americans are more individualistic beings due to their food choices and are responsible for their own health and nutritional choices. In short, the American and British populations are individualized and medicalized regarding their food-related lifestyles.

Fischler et al. (2008) analyzed a contrasting result in French, Italian, and Swiss food-related lifestyles. Unlike Americans, Europeans assessed the value of freshness and taste in food in their dietary decision-making. While the French might also believe that eating nutritiously impacts their health, their perception of nutrition and health claims are unique. The French assume a varied and balanced healthy diet (Masson et al., 2016; Paul Rozin et al., 2006); for them, eating well does not just apply to the usage of food but also to commensality and tradition. One case showed the different relations between food and medicine for the American and French people. For Americans, food and drugs exist on the same continuum whereas the French

see food and drugs as incompatible. In addition, the first terms that come to the minds of French people when hearing food are cuisine, menus, and dishes. Yet, the first terms that come to the minds of Americans are only about nutrition and has less to do with cuisine and social context (Fischler, 2011; Masson et al., 2016; Paul Rozin, 2005). For Americans, the nutrition and function of food is shown on the label, where individuals can identify the amount and percentages of micronutrition that an individual should consume daily. A newer trend in the US is "counting the micros and macros" as a way to maintain a healthy diet (Chrysochou et al., 2010a; John M. de Castro, 2004a). In France, individuals relate the nutrition of food with its source. For instance, they consume plant-based foods in order to acquire plant-based nutrition and consume fish to intake vital fats (Masson et al., 2016).

Eating is a simple, primary biological action. Food, though, is a matter beyond nutrition. Meals balance and classify both social and individual behavior at the social and biological levels. Throughout the evolution of culture, food has been applied in many contexts beyond nutrition. For one, food is a social vehicle (Fischler, 2011; Paul Rozin, 2005). It involves nutrition, yes, but it also takes on moral significance and has social links that perform symbolic and diplomatic functions. Food plays a massive role in what we eat, how we eat and with whom we eat it. Every culture is filled with numerous symbols and norms for which there is little scientific explanation. Food and eating can also be definitely analyzed as a foundation for social, religious, ritualistic, and sacrificial systems (Fischler, 2011). However, food's social relevance does not negate its major effect on societal health and food-related habits (Fischler, 1980; Paul Rozin, 2005). These systems represent some foods as unhealthy or not good. For instance, some Muslim and Jewish people avoid eating pork because they have the specific norm in their mind that it is unclean. Hindus avoid eating beef because they believe that cows are holy (Fischler, 2011; Paul Rozin, 2005).

Examples of cultural commensal eating rituals are Ramadan, Christmas, and Easter. These festivities all entail people coming together to fulfill their religious duties and eat specific foods that have been traditionally prepared in the same ways for many years—traditions for food and eating that we still follow even in the contemporary developed world. Food culture, however, can affect more than our food values. For example, in many countries in Africa, overweight women are more attractive, whereas in western countries normal-weighted women are seen as more attractive. These situations help us understand the importance of culture and tradition (Fischler, 1980; Honkanen et al., 2006). Today thousands of different food preparation

techniques and cuisines exist, proving that food has become a tool for aesthetic expression (Fischler, 1988; Paul Rozin, 2005).

That being said, cuisine has not been so thoroughly explored solely due to aesthetic expression. The human nature of incorporation has also adapted food-related lifestyles. Food has been and continues to become more than nutrition and biology. It has become culture, tradition, social norms; food is even a key element in the construction of identity. Humans' innate desire to create an identity is what led them to find certain foods, various methods in cooking and serving food. Thus, humans invented cuisine (Fischler, 2011; Paul Rozin et al., 2006, 2011). Food has additionally allowed people to grow social relationships with others by cooking together, eating together, and sharing food (Fischler, 1980; Institut Paul Bocuse, 2018; Paul Rozin, 2005). Food has become a further substitute for conviviality, a term that communicates the pleasure to be together and eat around the table (Institut Paul Bocuse, 2018).

To elaborate in greater detail, France and the US will be compared. The French believe that a healthy diet is a varied and balanced one that consists of fresh, tasty, and natural foods. They also believe that eating well should not only take into account the usage of food but also commensality and tradition (Masson et al., 2016; Paul Rozin et al., 2006). By contrast, Americans follow strict rules regarding health, nutrition, and information in their food-related lifestyles and management principles. Moreover, Americans make individual choices in their food purchasing and intake, assuming that the label of a food defines its healthiness in terms of its nutrition and function (Masson et al., 2016; Pearcey & De Castro, 2002; Paul Rozin et al., 2006).

Different from most European countries, the US displays an extremely high obesity rate: 36.2% (Dobbs et al., 2014; World Health Organization, 2017). At the same time, Americans are idealists who believe that decisions made regarding food-related lifestyle are free and individual choices that should be guided by rules and health characteristics (Chrysochou et al., 2010a; Fischler, 2011; Paul Rozin et al., 2011; Thøgersen, 2017). Furthermore, they follow strict principles, rules, and nutrition in their FRLs and focus on nutrition and bio-medicinal aspects of food rather than the pleasure of it (Fischler, 2011; Paul Rozin et al., 2011).

The French, however, do not primarily eat nutritiously but commensally and experimentally. This focus on the joy, satisfaction, taste, and commensal aspects of food in turn makes them focus on the culinary order of food (Fischler, 2011; Masson et al., 2016; Paul Rozin, 2005; Paul Rozin et al., 2011). The French are largely ordinary and indulgent pragmatists and

experientialists. Interestingly, France has one of the lowest rates of obesity in Europe despite the fact that its population consumes the highest total caloric intake from saturated fatty acids with 14.6% consisting mostly of animal fat. Additionally, the rate of cardiovascular disease is 30% lower in France than in the US (Paul Rozin, 2005; Paul Rozin et al., 2006; World Health Organization, 2017).

There exist many additional differences in FRLs due to different global food cultures. These differences are significant and especially so in terms of the amount, composition, and pattern of intake—characteristics that are heavily influenced by cultural and social backgrounds. De Castro et al. (1997) pointed out that Dutch students consume foods that are high in carbohydrates and low in fat and protein whereas French students follow a diet of high-fat foods. Another major difference is that during the French divide, kilocalories meaning carbohydrate, fat, and protein are evenly distributed throughout the day, whereas the consumption of carbohydrates, fat, and protein in Dutch and American diets increases significantly throughout the day. The French also have the smallest-portion meal sizes. In contrast, the Dutch have the largest-portion meal sizes. Analysis of alcohol consumption illuminates another trend. The French increase their alcohol intake during the day and consume the most alcohol in the evening. In addition, from the three studied nations, the French are the population with the highest level of alcohol consumption and the Dutch the lowest. Americans follow a similar habit to the French's alcohol intake though in smaller amounts. The Dutch consume nearly the same amount of alcohol throughout the course of the day and overall consume the least amount of the three countries studied (John M. De Castro, 1997).

Furthermore, Dutch people tend to eat a large number of small meals during the day. In contrast to that, French people eat their largest meal in the early afternoon. For Americans, dinner is the largest meal of the day, whereas breakfast is the smallest meal of the day (John M. De Castro, 1997). For this reason, breakfast is less popular than dinner because of its importance for Americans. The higher level of alcohol intake during dinners contributes to this and may lead to further weight gain or obesity (John M. de Castro, 1994; Pearcey & De Castro, 2002). These studies illustrated the paramount effects of culture, tradition, and environment on the amount, frequency, and other manners of dietary habits (John M. De Castro, 1997; Fischler, 2011; Paul Rozin, 2005; Paul Rozin et al., 2006).

Due to their food-related lifestyles and dietary habits, it is concluded that Americans eat more individual than central Europeans – especially Italians and the French – who are more commensal eaters. For French people in particular, healthy and balanced food intake requires that a meal takes place at a specific time, in a specific space, and with specific people, table arrangements, and food contents (Fischler, 2011; Fischler & Masson, 2009; Masson et al., 2016). Fischler et al. (2008)'s study about the food-related lifestyles of several nations supports this hypothesis. When asked about paying the bill of a meal eaten together with close friends, 64% of Germans and 50% of Americans chose to pay for what they ate. In contrast, 68% of Italians, 59% of Brits, 58% of the Swiss, and 56% of the French chose to divide the bill equally. This shows that Americans and Germans are more individualized eaters than other nations studied (Fischler, 2011; Paul Rozin et al., 2006, 2011).

4 Commensality

People are shaped by their social environments. Humans are far more social and complex beings than other animals. Humans often display very different behaviors in different social environments (Chrysochou et al., 2010b; John M. de Castro, 1994; John M. De Castro, 1997, 2009; Fischler, 1980, 2011; Grunert et al., 2011; Sobal & Nelson, 2003; Sproesser et al., 2019; Thøgersen, 2017). These behaviors vary by degrees. De Castro (1997) highlighted that humans express their simple behaviors in social groups and struggle with more complex behaviors.

Eating is a simple basic behavior. Yet, individuals show different and complex habits when eating in a social group. So, the term commensality was introduced (Chrysochou et al., 2010a; Fischler, 2011; Pérez-Cueto et al., 2010; Reid et al., 2008; Paul Rozin et al., 2011). The term "commensality" comes through French from the Medieval Latin "commensalis", meaning eating at the same table (Fischler, 2011). Commensality is the concept of humans eating in groups (Fischler, 1988, 2011; Fischler & Masson, 2009; Masson et al., 2016; Paul Rozin et al., 2006, 2011; Sobal & Hanson, 2011; Thøgersen, 2017).

The term commensality was created to describe the social nature of eating. Other than animals, humans need to interact and do so in different forms of social relations such as social integration, social acceptance, and social satisfaction (Fischler, 2011; Masson et al., 2016; Paul Rozin, 2005; Paul Rozin et al., 2006, 2011; Sobal & Nelson, 2003). Commensality encompasses more than simply eating with other people, though. In most cultures, it is a tradition for those in the same family, to consume food together. A further suitable example is the bonding experience of mammalian feeding, which supports the child's increasing inclusion in the family and their eventual easing into a larger society. Additionally, individuals eating together increase their tendency to create better social relationships and improve the quality of their diet. (Institut Paul Bocuse, 2018). The representation of a good, balanced diet is structured around mealtimes and commensality in combination with tradition and usage (Fischler, 2011). Those who eat with an individual who follows a healthy diet are more likely to follow the healthy diet as well (John M. de Castro, 1994).

Although eating is considered a simple behavior, individuals have their own eating patterns. Eating is a very simple behavior that every human does very frequently, which raises the

expectation that humans eat around a commensal social group (John M. de Castro, 2004a; John M. De Castro, 1997, 2009). Many studies have found that eating indeed is a social phenomenon. Food intake functions differently in humans than in animals. As John De Castro (1997,40) pointed out "A good meal tastes better if we eat in the company of with friends'". There are numerous factors influencing food intake habits in humans. Excluding the individual factors, the factor with the highest relation to food intake in humans is social facilitation (John M. De Castro, 1997). As eating with others leads to higher pleasure, eating alone may lead to higher stress levels (Danesi, 2018; Paul Rozin, 2005; Vesnaver, Keller, Sutherland, Maitland, & Locher, 2016). Social facilitation refers to the social group in which humans eat and drink. It can be a group of family members, friends, colleagues, or even strangers. According to De Castro (1997), humans eat higher volume of food with spouses, families, or friends. Meals eaten with co-workers are significantly smaller (J. M. De Castro & De Castro, 1989; John M. de Castro, 2004a; John M. De Castro, 1997).

According to Bloch (1999), families who feast together under one roof build a better relationship. Family is the most crucial social unit and is the core for most commensal circles (Sobal & Nelson, 2003). On the basis of smaller groups such as neighbors, though, there has been increasing bonding through commensal festive occasions. For most individuals, sharing food or eating together is a personal experience rather than a professional one (Fischler, 2011; Paul Rozin, 2005; Paul Rozin et al., 2006, 2011). Therefore, those who eat with their colleagues consume less food compared to individuals who eat with family and friends. De Castro (1997) stated that individuals consume even smaller amounts of food with colleagues than when eating alone. Eating with more personal relations like spouses, partners, or lovers is still seen by many as a romantic or sexual experience that bonds individuals on a deeper level (Fischler, 2011).

Commensality can be both inclusive and exclusive. While eating with other people impacts social relationships positively, someone who is not included in the group can have a negative reaction (Fischler, 2011). Commensality sets hierarchies and equality in the social group that eats together. For instance, the long and rectangular table often represents a social hierarchy whereas a round table enables horizontal commensality and leads to maximal equality, friendliness, and information exchanges between individuals (Fischler, 2011). Commensality means enjoying and interacting with individuals at the dining table, and it allows people to

freely bond and grow in their relationships through private and informative dialogs (Fischler, 2011).

4.1 Commensality in Global Food Culture

There are two prevailing perspectives on contemporary commensal patterns: cultural values and structural individualism (Fischler, 1988, 2011; Sobal & Nelson, 2003). Different cultures' values impact societies to eat and cook in specific ways and to engage individuals in social groups and eat commensally. For such societies, eating alone is not considered a proper meal. This social norm pushes people to follow "ideal" food-related lifestyles (Sobal & Nelson, 2003). Structural individualism, however, is based on social isolation. In contemporary food culture, individualization of dietary habits is common. These habits involve the loss of traditional eating identities and minimize good relations with other members of the social group, namely family members, friends, and colleagues (Fischler, 1980, 1988, 2011; Sobal & Nelson, 2003). Fischler demonstrated structural individualism as a state of "gastro-anomy." This term underlines the fact that food selection is individual for modern individuals (Fischler1980). We observe this type of food-related lifestyle especially in Americans, who believe that food decisions are individual, free, healthy, and information-based choices (John M. De Castro, 1997; Fischler, 2011; Paul Rozin, 2005; Sobal & Nelson, 2003).

Individuals who grew up in diverse cultures follow different traditional habits and hold different values (Chrysochou et al., 2010a; Fischler, 2011; Reid et al., 2008; Sobal & Nelson, 2003). The role of commensal eating, then, differs among cultures. Due to the industrialization, medicalization and individualization of food, the eating habits of most cultures in developed countries have changed. It is, therefore, beneficial to analyze the principal differences between food-related lifestyle and relationships to food in modern western culture (Chrysochou et al., 2010a; Fischler, 2011; Pérez-Cueto et al., 2010; Reid et al., 2008; Paul Rozin et al., 2011).

As opposed to Americans, Europeans view eating as a social, public dimension that includes a broader scope of activities like cooking together and sharing food, whereas Americans consider eating an individual act. They see eating as a right and a personal freedom of unique decision-making in individual needs. For them, managing the purchase and consumption of food should

be rational, scientific, and economically logical (Fischler, 2011; Paul Rozin, 2005; Paul Rozin et al., 2006; Sproesser et al., 2019). The French are more relaxed and public with their food choices and they eat commensally. Americans follow strict rules regarding health, nutrition, and information in their food-related lifestyles. In addition, they see food and eating choices as individual and free habits, which leads them to eat less commensally (Chrysochou et al., 2010a; Fischler, 2011; Masson et al., 2016; Pearcey & De Castro, 2002; P. Rozin et al., 1999; Paul Rozin, 2005; Paul Rozin et al., 2011). The fact that the French people are social and commensal eaters who have more communal food values than Americans impacts food-related choices and lifestyles. They assume that eating is a social and public event, and so the duration of the meals increases based on the number of individuals in the social group. Americans, though, expect more options than the French when it comes to their food-related choices and availabilities. They enjoy being able to choose their food from many options and want to make the decision more individualized and free (Chrysochou et al., 2010a; Fischler, 1980, 1988; Paul Rozin et al., 2012, 2011). Americans also tend to value quantity over quality in their food. An example of this is the prevalence of massive supermarkets that make every variety of every type of food easily available (Paul Rozin, 2005).

An additional characteristic of the French is that they believe in joy, experience, pleasure, and satisfaction in their food-related lifestyles. This includes having good meals with friends, having meals from different cuisines, being able to spend more time and money on culinary pleasure, and likely includes involving social interaction in food consumption (Chrysochou et al., 2010a; Fischler, 1980, 1988; Paul Rozin et al., 2012, 2011). Americans, by contrast, are influenced by comforts in their food-related lifestyles. They have an unending stream of options, technologies, and accessibility in their everyday lifestyle including new kitchen gadgets, extensive product ranges in supermarkets, higher availability in online delivery and grocery services, and even electrical scooters for obese and disabled individuals (Pearcey & De Castro, 2002; Paul Rozin et al., 2011; The Nielsen Company, 2018).

The French people's prioritizing of commensal eating, experience, and joy rather than comforts explains that they put more importance to social versus individual values, which is a common feature of collectivism and communal values. These communal values may be based on the history of France, which developed over centuries a sophisticated cuisine based on high quality, freshness, and the taste of the meal. This defined cuisine shows that French people prefer quality

over quantity. This is why French portion sizes are smaller than in America and many other European cultures (Paul Rozin et al., 2006, 2011). It also explains why French food is more expensive. The large portion sizes in America tend to be less expensive in terms of volume than the portions sizes in many other countries (Paul Rozin et al., 2006, 2011). In France, an average household spends 13.8% of their monthly expenses on food, whereas Americans spend only 5.7% of their monthly household income on food (Fischler, 2011; Masson et al., 2016; Paul Rozin et al., 2006). This illustrates a suitable example for the following statement: Obesity is not only dependent on what people eat but also on how people eat (Fischler, 2011; Sproesser et al., 2019).

4.2 Commensality Today

Mennell, Murcitt & van Otterloo (1992) pointed out that industrialization and paramount changes in our daily lifestyle impact the way we eat. Commensality has decreased over time; the change of lifestyles and urbanization led people to make their own food decisions. Individualization gave humans further power to decide what, how, and with whom they eat. For some, eating alone brings more pleasure and less stress because it frees them from following the social norms and manners insisted on in social settings. This habit is especially present in young European adults (Danesi, 2018). Since individuals are the masters of their own choices, food has become all about nutrition and calories. This is caused by not only globalization, media, and advertisements but also by the increasing concern with appearance and bodily image. For this reason, the principal concerns for humans are calories, healthy-eating approaches, physique, and body weight (Chrysochou et al., 2010a; Grunert et al., 2011; Paul Rozin et al., 2011; Thøgersen, 2017; Verain et al., 2012). The healthy super food trend illustrates this and is an increasingly common fad. It has even engendered a new market category that has thus far been marketed successfully. This market sector leads consumers to believe that super foods and protein-heavy foods are the most nutritious, healthy, and ideal for a healthy, low-calorie lifestyle. Such products are marketed so well that almost no one recognizes the extra added sugars in these products. The rising focus on nutrition and health trends in the food industry has nearly erased the social aspects of food and eating; this has played a major role in people's health regarding the volume, time, and frequency of food intake (John M. de Castro, 1994; John M. De Castro, 1997; Fischler, 2011; Paul Rozin et al., 2011).

We earlier underlined the escalating trend of eating alone. Despite its popularity, eating alone carries numerous risks (John M. de Castro, 1994; Fischler, 2011; Paul Rozin, 2005; Vesnaver et al., 2016). In the past, most cultures did not support eating alone, and it was avoided. In many traditions, the importance of sharing food is crucial. Consequently, commensality played a massive role in crafting civilization, rules, manners, and cultures. The replacement of traditional food cultures with a focus on functional and nutritious aspects of food today will be discussed now (Masson et al., 2016). On the basis of freedom, individualism, and availability of information and food choices, humans tend to make their own decisions about what, how, and with whom they want to eat. This not only led to the death of certain cuisines and food cultures, but it also created a space for eating alone (Fischler, 1988, 2011; Masson et al., 2016; Paul Rozin, 2005; Vesnaver et al., 2016).

Eating alone is an important issue in terms of social relations, public health, obesity, and other related issues (Fischler, 2011). One issue is that eating alone causes mindless eating, which can indirectly lead to higher calorie intake (Danesi, 2018; John M. de Castro, 1994; Fischler, 2011; J. Ogden et al., 2013; Sobal & Nelson, 2003). Among some groups and in particular the French population, eating alone is a source of stress. They confront the fear of negative judgement when eating alone. Some French individuals even arrange eating events in advance. In many humans' minds, eating on the way to another place, while standing, while walking, or when on the street cannot not be associated with eating a meal. For an accurate meal, humans need a defined place, a social group, an amount of time, and a minimal sequence of dishes (John M. de Castro, 1994; John M. De Castro, 1997; Fischler, 2011). Another issue is that individual eating causes loss of traditional collective eating identities. Without social control, individuals may carry a higher risk of eating unhealthily and potential diet-related illnesses. These can be diseases such diabetes type 2, hypertension, and most likely being overweight or obesity (Sobal & Nelson, 2003). John De Castro found opposing results. He found that eating with others causes higher food intake than eating alone and outlined that higher social interaction directly increases meal duration. Hence, humans in a commensal eating group tend to gain more weight than humans who eat alone (John M. de Castro, 1994; John M. De Castro, 1997).

It is useful to examine the different habits of obese and normal-weighted individuals. In a study, it was concluded that obese people eat more when paired up with another obese individual. Simultaneously, obese people eat less when paired with an individual of normal weight. The

same characteristics in eating habits are not seen in normal-weighted people, though. They consumed the same amount of food even when paired with an obese person as with a normal-weighted person (John M. de Castro, 1994; John M. De Castro, 1997).

4.3 Commensality and Obesity

According to Fischler, Europeans tend to gain more weight and become overweight or obese if they are eating alone. A result comparing European and American habits found that individual and nutritious dietary habits make individuals less healthy by leading to obesity and related diseases. Individualization, privatization, industrialization, and globalization lead to obesity. A better relationship to food must be built and eating habits should become more commensal (Fischler, 2011).

John M. De Castro brought an opposing approach to this conclusion. He found that commensal eating in a social group increases the intake of food and drink. He explained that family and friends especially support an increase in food consumption with their greater social facilitation (J. M. De Castro & De Castro, 1989; John M. de Castro, 1994; John M. De Castro, 1997). Furthermore, he demonstrated the effect of social eating on social correlation. The more people present at the meal, according to de Castro, the higher the amount of food eaten (J. M. De Castro & De Castro, 1989; John M. de Castro, 1994). This social correlation occurs in breakfast, lunch, or dinners eaten at home or out-of-home and on weekdays or weekends. The meals may be classified as meals or snacks and include food intakes combined with drink or alcoholic beverage consumption. The reason for this may be the increased duration of meals when eating with companions or the higher satisfaction and pleasure brought by a meal that is eaten with others (Danesi, 2012, 2018; J. M. De Castro & De Castro, 1989; John M. de Castro, 1994; John M. De Castro, 1997).

Several laboratory studies of social facilitation of eating in humans observed that people tend to eat more in the presence of other people (John M. De Castro, 1997). De Castro explained that the majority of the US population tends to gain more weight when they are eating together as a group. Berry et al. (1985) illustrated that regardless of gender, 94% of people eat more ice cream in groups than while eating alone. In the study by Conger et. al. (1980), it was found out

that people eat 86% more when paired than alone. Furthermore, the food intake of humans does not depend only on their eating group but also on the characteristics of their companions. It is crucial to mention that some Americans model their social groups when they are eating. This may impact them positively or negatively. Luca & Spigelman (1979) observed in their study that obese individuals tend to eat more when with another obese individual whereas they eat less if they are paired with a non-obese individual. Normal weighted individuals were not affected by their partner's weight. If members of a social group eat healthy and lower-calorie foods, the other members will as well. Simultaneously, if the social group with whom the individuals eats follows an unhealthy diet, the individuals also eat unhealthy foods. A second environmental factor that influences the US population in eating is the feeling of being watched. Many obese Americans claim that if they are feeling observed and watched, they eat less. A study by Krantz (1979) supported this hypothesis. He observed that obese people consume less food when they eat with a social group than when they eat alone. Another study by Rozin (2005) pointed out that 13.5% of obese American women and 4% of obese American men are embarrassed to purchase a chocolate bar in a store because they fear being judged for their dietary habits. In contrast, non-obese individuals purchase more food when in a social group (J. M. De Castro & De Castro, 1989; John M. De Castro, 1997).

Furthermore, it has been found out that American people tend to eat more with friends than when they are paired with a stranger or alone (J. M. De Castro & De Castro, 1989; John M. de Castro, 1994, 2004b, 2004a; John M. De Castro, 2009; Pearcey & De Castro, 2002). For instance, Edelman et al. (1986) found out that both obese and normal-weighted people ate 48% more in the cafeteria than when alone. There exists a positive relationship between the number of individuals present and meal size. While the existence of one other person increases the meal size by only 33%, an additional seven people increases the meal size by up to 96%. Furthermore, the people with whom humans eat influences the amount of food eaten (John M. de Castro, 1994; John M. De Castro, 1997, 2009). The emotional state of an individual in relation to their eating partner or eating group plays a massive role in the amount of food consumed. In higher-intensity emotional relationships, more is eaten. In addition, the factor that increasingly determines the amount of food intake is an individual's comfort level in their commensal eating group. The greatest amounts of food are consumed while with family and friends (John M. de Castro, 1994). Different genders even tend to perform distinct eating habits. Females eat 13% more when in the company of a man, whereas men do not show a significant difference. Another dimension that may be affected are the roles of gender and sexual attraction.

Mori et al. (1987) concluded that 75% of the female population eats less when in the presence of a desirable man than when in an undesirable social group. The same outcome could not be analyzed in men, however. A further study displays that both male and female college students eat less in the presence of an attractive member of the opposite sex (John M. De Castro, 1997).

To support these hypotheses in daily life as well as the lab, De Castro (1994) investigated over 700 North Americans from diverse geographical regions ranging in age from 18 to 70 years who weighed an average of 72.1 kg, measured 1.69 m in height, and 25.1 kg/m^2 in BMI (John M. de Castro, 1994). He asked them to keep a diary for a period of one week in which they would note their food and drink consumption including the number of foods and drinks they consumed, the methods of preparation, the times they ate, and the number of individuals at the meal. Furthermore, he used five different definitions of a meal based on the intake of kilocalories and the duration of food intake, 15min/50 kcal, 45 min/50 kcal, 45min/100 kcal, 45 min/200 kcal and 90 min/500 kcal (John M. de Castro, 1994). Firstly—also earlier supported by numerous studies—it was found that 44% eat larger meals in the presence of company than when alone. These meals included higher amounts of carbohydrates, fat, protein, and alcohol. Secondly, it was found that the highest food intake occurs when with the spouse followed by family, friends, and others such as roommates and classmates. Thirdly, it resulted that these individuals eat less when alone than when they eat even smaller amounts with their co-workers (John M. de Castro, 1994; John M. De Castro, 1997). This positive correlation is called social correlation, which demonstrates that more people present at a meal leads to more food eaten.

That being said, meal size is elastic and can be influenced not only by the environmental factors but also social factors (J. M. De Castro & De Castro, 1989). A further factor that plays a role in the relationship between food intake and social groups is time of day. For Americans, dinner is the largest meal of the day as opposed to in France where lunch is the largest meal. In addition, it can be obtained that the French maintain a structured mealtime with defined and stable frequencies. More than half of France's population eats their lunch at 12:30 exactly. This may cause them to snack less (Fischler, 1988, 2011; Paul Rozin et al., 2011). In France, Breakfast is the smallest meal of the day. For this reason, it is eaten by fewer people than dinner, which is the biggest meal of the day for Americans (John M. De Castro, 1997). Snacks are generally small and eaten alone in America, while meals are in general larger and more likely to be eaten in a social group of family, friends, colleagues, and partners (John M. De Castro,

1997; Paul Rozin, 2005; Verzeletti, Maes, Santinello, & Vereecken, 2010). Snacking is relatively rare in France. Food is not offered or consumed between meals, and they regularly follow proper mealtimes (Fischler, 1980, 2011; Paul Rozin, 2005; Paul Rozin et al., 2011). There is a higher intake of alcohol with dinner, which may further lead to weight gain and obesity (John M. de Castro, 2004a).

Research into the factors that contribute to the frequency of meals has shown that frequency of meals is not influenced by environmental circumstances. Having said that, Zoo et Nederland (1992) pointed out the role of different cultures in the composition and pattern of food consumption. Dutch people, for example, tend to have higher meal frequencies than the French and American peoples. This has been found to be true in both young and elderly Dutch citizens (John M. de Castro, 2004a; John M. De Castro, 1997). Despite this, the presence of others still increased meal sizes and the degree of satisfaction with the food consumed (J. M. De Castro & De Castro, 1989).

People eat more in larger socials groups than they do when alone (John M. de Castro, 1994; John M. De Castro, 1997, 2009). There are several theoretical explanations for the influence of the presence of other individuals on food amounts and patterns. One is that social contact may release people from inhibition and make them comfortable enough eat freely and calmly in social meals (Rajecki et al., 1975). In particular, it has been observed that the closer the social group the more comfortable the person feels and therefore the more comfortable they feel eating. Meals eaten with co-workers and classmates, however, are 16% smaller than even meals consumed alone. This may be explained by anxiety, stress, and a lack of calm in those situations (John M. de Castro, 1994; John M. De Castro, 1997). Another reason may be that social eating takes longer compared to eating alone (J. M. De Castro & De Castro, 1989; John M. De Castro, 1997).

Commensal eating improves relationships within the social group and increases the amount and length of verbal interaction during eating (Fischler, 2011). Verbal interaction between humans then tends to increase the period of eating and this situation may boost the amount of food eaten overall (John M. de Castro, 1994). Furthermore, it may produce a higher level of stomach filling and further satisfaction with the meal by its end (John M. de Castro, 1994; John M. De Castro, 1997, 2009). Several studies have found that the relationships within social groups determine

dietary habits. The chances that a person will build stronger relationships with the other members of the social eating group become higher the more they eat with them (John M. de Castro, 1994; Institut Paul Bocuse, 2018). Furthermore, eating out-of-home leads to further social interaction than at home with individuals in a social group. A social group with a strong relationship has the most dialogue and verbal interaction, which causes them to spend more time at the eating establishment than people with weaker relationships. The extended time spent eating cannot be avoided, which leads to a significantly higher intake of food and drinks. For example, eating and drinking in restaurants with family, friends, or a partner expands the amount of food consumed substantially. Especially restaurant play a paramount role in increasing food intake. The ambience in restaurant may lead to higher duration of eating, which may lead to higher energy intake as usual (Stroebele & De Castro, 2004).

One aspect of eating commensally is that it supports cooking. While individuals build social relations by eating together, they concentrate on the freshness and taste of food. This induces such individuals to cook and attempt to improve the flavor of their food. This is supported by the fact that France boasts one of the world's most developed cuisines and that there are fewer food options there than in America (Fischler, 1980, 2011; Paul Rozin et al., 2006, 2011). It is also true that the term commensality applies to cooking together as well as eating together (Danesi, 2012, 2018; Fischler, 1980). Many social relationships have grown and improved through cooking together. Cooking together increases the feeling of belonging and acceptance in a social group (Danesi, 2012). In fact, a study among French and German young adults showed that eating alone causes a decrease in cooking. French individuals, though, still mostly push themselves to cook even if a meal will be eaten alone. They believe that eating solitary, quick, and uncooked meals does not feel like eating a meal but rather a method for feeding the body (Danesi, 2012). Interestingly, it is many Americans' principal goal to simply "feed the body" and get the nutrition of food when eating (Fischler, 2011). In contrast to the French, Germans are satisfied cooking for themselves regardless of if they are eating alone or in a social group, and they point out the increasing stress when cooking for others. Young adults who lived and ate alone purchased more pre-prepared dishes such as sandwiches and snacks rather than fresh ingredients to cook with at home. Additionally, a correlation has been made between the lack of cooking habits and a lack of motivation to cook. According to a 26-year-old German woman, this motivation was cooking for others and sharing the meal. When cooking for or with others, there is a clear increase in the duration of meal preparation and a desire to cook a "proper" meal for others to satisfy guests. Additionally, many pointed to cooking as a suitable

activity to become better acquainted with foreign individuals. Cooking can quicken the building of relationships not only with intimate social groups but also with other people (Danesi, 2012, 2018). In the survey, many young European adults stated that they not only cook faster when alone but also eat in 10 minutes. That individuals prefer cooking for or with other people more than alone lets us understand that cooking is not about eating but about interacting with other individuals, exchanging information, and growing better social relationships (Danesi, 2018; John M. de Castro, 1994; Fischler, 1988, 2011). Eating quickly and mindlessly may be linked to higher food and calorie intake, which can cause obesity.

Additionally, the subjective state of hunger positively influences the amount of food consumption (J.M. De Castro & Elmore, 1988). Different cultures and nationalities may affect the ratings of hunger. In the study by de Castro (1994), it was found out that Americans have the highest self-hunger rate followed by the French and the Dutch, which may lead Americans to eat a meal at home or eat more frequently. As a result, individuals have a higher change of gaining more weight and becoming more overweight or obese (J. M. De Castro & De Castro, 1989; John M. de Castro, 1994, 2004a; John M. De Castro, 1997).

5 The French "Paradox" and Obesity

There are several drivers of obesity. Since economic drivers such as income and economic issues affect weight, it is helpful to analyze higher obesity rates in developing countries (Barilla Center for Food and Nutrition, 2012; Cutler et al., 2003; Fischler, 1980, 2011; Grunert et al., 2011; Paul Rozin et al., 2006; Sproesser et al., 2019; Swinburn et al., 2019; World Health Organization, 2017). Obesity shows a similar distribution in developed countries. In particular, other than individual and economic drivers, we point out the environmental drivers regarding culture and tradition. These points play a massive role in deciding how and what we eat. The amount, the frequency, the duration, and the composition of humans from different cultures must be emphasized (John M. De Castro, 1997; Fischler & Masson, 2009; Grunert et al., 2011; Paul Rozin et al., 2011). The cultures with greater commensality have fewer problems with obesity and health. France and Italy, for instance, demonstrate less obesity prevalence than other European countries (Dobbs et al., 2014; Fischler, 2011; World Health Organization, 2017). Although the French follow a high-fat diet and consume more alcohol, they are one of the healthiest nations in Europe. In addition, France is the one country that carries attachment to mealtime and commensality (John M. De Castro, 1997; Paul Rozin et al., 2011; World Health Organization, 2017). One study found that 54.1% of French citizens eat their lunch at 12:30 exactly. Additionally, 80% of the French population eats their lunch and dinner commensally with a social group (Chrysochou et al., 2010a; Fischler, 1980, 2011; Fischler & Masson, 2009; Paul Rozin et al., 2006). The French show fewer snacking habits, retain specific mealtimes, and eat with a social group (Fischler, 1980, 2011). Commensality is considered in other European countries, such as Italy and Switzerland, that are dedicated to eating healthily; this is as opposed to Americans who follow nutritious and individualized diets (Fischler, 2011; Grunert et al., 2011; Paul Rozin et al., 2006).

Different from most European countries, the US displays high obesity rates (Dobbs et al., 2014; World Health Organization, 2017). The US also exhibits fewer commensal eating habits in comparison to most European countries. The reason for that is Americans believe that decision-making in food-related lifestyle is a free and individual choice that should set by rules and specific health characteristics (Chrysochou et al., 2010a; Paul Rozin et al., 2011; Thøgersen, 2017; Verain et al., 2012).

Important to this study is the French "Paradox". French citizens eat not nutritiously but commensally and experimentally and do so based on a culinary order with focused on the joy and taste of food. Americans, however, are idealists who follow principles, rules, and nutrition order in their food choices (Chrysochou et al., 2010a; Grunert et al., 2011; Pearcey & De Castro, 2002; Paul Rozin, 2005; Paul Rozin et al., 2011).

France has one of the lowest rates of obesity in Europe despite having the population with the highest total caloric intake from saturated fatty acids: 14.6%, mostly consisting of animal fat (Paul Rozin, 2005; World Health Organization, 2014). The rate of cardiovascular diseases is 30% lower in France than in the US. In addition, Americans live on average 69.3 years, whereas the French live an average of 72 years (Paul Rozin, 2005). The World Health Organization reported that, in 2016, only 21.6% of the adult French population was dealing with obesity. The childhood obesity rate in France is also one of the lowest in Europe (Curie et al., 2012). Americans, though—despite their nutritious, controlled, and indulgent dietary habits—battle with a steep obesity rate of 36.2%, up from 14% in the 1970s (Chrysochou et al., 2010a; Cutler et al., 2003; World Health Organization, 2017).

How do the French manage to stay healthy with their experimental, culinary, and resigned food-related lifestyles? Paul Rozin and Claude Fischler illuminated the paradox further. The first hypothesis is about their values of food. For the French people, eating goes further than nutrition. They care about the experience and joy of eating and believe that eating is a commensal act (Fischler, 2011; Masson et al., 2016; Paul Rozin, 2005; Paul Rozin et al., 2006). They assume themselves to be more healthy eaters with their balanced diet. As opposed to the French, Americans focus on the consequences of eating. They chose other values such as comfort, information, functionality, and principles over joy, pleasure, and satisfaction (Chrysochou et al., 2010a; Fischler, 1988; Paul Rozin et al., 2006, 2011). As a result, they may eat with more stress and less pleasure (Paul Rozin, 2005). The fact is that, due to their need for comforts, Americans anticipate further varieties and availabilities in their food options, whereas the French do not expect or desire a high number of food choices (Paul Rozin, 2005; Paul Rozin et al., 2006, 2011).

Initially, we outlined France's higher intake of fatty acids and assumed that they intake more calories than others with "healthier" diets. There is, however, another hypothesis regarding

calorie intake. Firstly, the French do not snack and instead follow regular mealtimes (Fischler, 1980; Pearcey & De Castro, 2002; Paul Rozin, 2005; Paul Rozin et al., 2011). Secondly, French portion sizes are 25% smaller than the supermarket and restaurant sizes in many other countries. This explains that the amount and intake of food per meal is 25% smaller there. In contrast, Americans purchase grocery products in bulk and order large restaurant meals, which leads to a greater intake of food and calories (Paul Rozin, 2005; Paul Rozin et al., 2006). An American meal, for instance, lasts an average of 13.2 minutes, while a meal in France lasts nearly double that at 22.3 minutes (Paul Rozin, 2005).

The different perspectives of the French and American populations on natural food are also worth emphasizing. Unlike Americans, the French assess the value of freshness and taste in food in their dietary decision-making. Hence, their perception of nutrition and health claims varies. The French assume a varied, balanced, and healthy diet (Masson et al., 2016; Paul Rozin et al., 2006). For the French, eating well should be combined with the usage of food, commensality, and tradition; what is healthy is organic and fresh. They often associate natural food with water, legumes, vegetables, and gardens (Masson et al., 2016). Simultaneously, Americans believe packaged products labeled as natural to be genuinely natural foods. The first healthy food that comes to the minds of Americans is yoghurt followed by organic and fruit. Individuals believing different foods to be healthy has an immense effect on health. Fruit may have higher sugars and can lead to fat gain if eaten in large amounts, and yogurt purchased in supermarkets may be filled with unhealthy chemicals (Masson et al., 2016). Another difference between Americans and the French is their perspective on Genetically Modified Organisms in foods. In France, only 12.1% are in favor of the use of GMOs, where the GMO-supporting prevalence in the US is 24.5% (Masson et al., 2016).

It is known that obesity can be controlled by a suitable input versus output balance of food. In addition to impacting input, food intake even plays a role in the energy output aspect of obesity prevention (Akkurt, 2012; Gedik, 2003b; Hamburg et al., 2014; Paul Rozin, 2005). The reasons for higher energy output in the French than in Americans may be the higher prevalence of walking and riding bicycles as opposed to driving. According to Rozin, many stores and daily needs are located so that individuals can walk to reach them. On the other hand, in the US individuals need to drive to get anywhere. Especially in suburban areas of the country, even the grocery stores are located so that people must drive from the parking lot of their residence to

another parking lot where very little walking is involved. Due to Americans' affection for comforts, even the doors open automatically for them. These small differences in daily habits can cause greater energy outtake, which protects individuals from obesity (Paul Rozin, 2005).

These arguments contribute to the understanding that eating healthy must not be based on nutrition and individualization (Cutler et al., 2003; Fischler, 2011; Pearcey & De Castro, 2002; Paul Rozin, 2005; Paul Rozin et al., 2006). Commensality regulates food intake and maintains individuals' health by lowering their obesity rates. Claude Fischler assumed that cultures with individual food patterns tend to gain more weight than commensal nations. He believed that longer durations of meals when eating commensally means that the amount of food stays the same. In addition, eating commensally, especially with family or friends, leads to reduced snacking habits since mealtimes are regulated and structured (Fischler, 2011; Masson et al., 2016; Paul Rozin et al., 2006).

John M. De Castro, however, believed that eating alone causes less food intake than eating commensally because it gives less pleasure and satisfaction. In addition, people eating commensally show longer durations of eating, which may cause them to consume more food. Furthermore, with his social correlation theory he underlined the following hypothesis: A higher amount of food will be eaten when more people are present at the meal (J. M. De Castro & De Castro, 1989; John M. de Castro, 1994). In another study of his, De Castro found out that greater energy intake occurs when a meal is consumed in a larger commensal social (Pearcey & De Castro, 2002).

In his other hypothesis, though, he underlined the variation involved in eating alone. He concluded that obese Americans exhibit behaviors that normal-weighted people do not—that obese people eat more when alone or with another obese individual, whereas they consume less food in the company of a normal-weighted person. One young woman compared eating to showing herself naked. As opposed to obese individuals, normal-weighted people are not influenced by the state of their social eating partner's weight. In addition, normal-weighted people tend to eat less when alone (John M. de Castro, 1994; John M. De Castro, 1997). Obese people eat more when alone, which may be due to a lack of judgement from others and therefore the presence of freedom to consume as much food as is desired. When intimacy in a commensal social group is lacking, individuals feel uncomfortable (Danesi, 2018; John M. de Castro, 1994; John M. De Castro, 1997; Paul Rozin et al., 2011). It has also been observed that obese people

adjust their eating behavior when they eat with other people or when in public. For instance, obese people consume significantly less food in public compared to when in private or alone (John M. de Castro, 1994; John M. De Castro, 1997; Pearcey & De Castro, 2002; Paul Rozin et al., 2011).

6 Operationalization of the Questionnaire

In this chapter, we present the methodological approach of this thesis. To gather and collect the data, as well as to address the five hypotheses and the four research questions (see Chapter 1.3.), we used an online survey (Lime Survey). The survey was anonymous and took place in May 2020. The survey was responded to by 222 adult participants, mainly from the US and Europe.

In the creation of the survey, we were inspired by the research report "Social discourses of healthy eating. A market segmentation approach" from Chrysochou et al. (2010a). Chrysochou et al. approached a multi-level framework of discourses regarding individual healthy eating behavior by segmenting the market into idealist, pragmatist, and common consumers. They used a web survey of 316 participants. The survey identified four dimensions of the Healthy Eating Discourses Instrument: "resigned," "indulgent," "controlled," and "ordinary" (Chrysochou et al., 2010a).

6.1 Objective of the Questionnaire

The primary objective of the questionnaire is to test the hypotheses. Therefore, the first measurement calculates the participants' BMI. The aim was to discover the contrasting characteristics between Americans and Europeans in their healthy and social eating orientations, and how these behaviors affect their health – specifically, whether these eating habits promote or prevent being overweight.

A further objective is to answer the four research questions (see Chapter 1.3.) derived from literature. The research questions seek answers to the differences in healthy-eating orientation between Americans and Europeans. Idealist consumers are strict with their healthy diets by following strong rules and principles. On the other hand, pragmatic consumers enjoy the freshness in food and social aspects of eating and tend to make more compromises regarding healthy eating in their daily lives (Chrysochou et al., 2010a; Fischler, 2011). The results will show whether idealist individuals are less likely to be obese than pragmatists.

In addition, the questionnaire contains questions about eating habits beyond nutrition, meaning in terms of the social aspects of food. Here, we also test the differences between Americans and Europeans regarding commensality.

6.2 The Questionnaire

The following tables illustrate the questionnaire design. This includes the detailed development of the questionnaire with suitable literature, indicators, and levels of measurement, which are crucial for data analysis. We mention the derived sources and explain necessary information for further understanding.

Items of Qualities for Healthy Eating			
Resigned	**Indicator**	**Level of Measurement**	**Notes**
I am not willing to spend extra money to follow a healthy diet. I eat what is easily available regardless of healthiness. I have given up searching for information about healthy food. I am not interested in what is right and wrong in the different health debates.	• Totally disagree • Mostly disagree • Somewhat disagree • Neither agree nor disagree • Somewhat agree • Mostly agree • Totally agree	Ordinal	The items and the categories for healthy eating are derived from the Healthy Eating Discourses Instrument of Chrysochou et al., (2010). Resigned and indulgent eating behaviors of individuals are measured with involvement in healthy food, that is, interest in natural and low-fat food products and willingness to pay for such foods (Chrysochou et al., 2010a; Roininen, Lähteenmäki, & Tuorila, 1999). The measurement was made on a 7-point Likert-type scale (Chrysochou et al., 2010a; Vagias, 2006).
Indulgent			
I am inspired by foreign cuisine and other new ideas in my cooking. I am willing to spend extra time on my daily food consumption for the sake of culinary pleasure. I am willing to spend extra money on my daily food consumption of the sake of culinary pleasure.			

Table 3: Survey items related to qualities for healthy, resigned, and indulgent eating behaviors; own representation.

Items of Qualities for Healthy Eating			
Controlled	**Indicator**	**Level of Measurement**	**Notes**
I have a strict control of that what I eat is healthy. Health concerns play a role in everything I eat. I always look for a scientific proof to accept whether a food product is healthy.	• Totally disagree • Mostly disagree • Somewhat disagree • Neither agree nor disagree • Somewhat agree • Mostly agree • Totally agree	Ordinal	The items and the categories for healthy eating are derived from the Healthy Eating Discourses Instrument of Chrysochou et al., (2010). Controlled and ordinary eating behaviors of individuals are measured by involvement in healthy foods, that is, consumers' prior knowledge of and exposure to healthy foods. (Chrysochou et al., 2010a; Roininen et al., 1999). The measurement was made on a 7-point Likert-type scale (Chrysochou et al., 2010a; Vagias, 2006).
Ordinary			
There are so many rules and guidelines for what you should eat these days that it is impossible to live up to them. There are so many extreme attitudes regarding healthy eating. You cannot trust much of the information about what healthy eating is.			

Table 4: Survey items related to healthy, controlled, and ordinary qualities for eating; own representation.

Items of Qualities for Social Eating			
Family values	**Indicator**	**Level of Measurement**	**Notes**
My childhood memories involve family gatherings with cooking or/and dining events.	• Totally disagree • Mostly disagree • Somewhat disagree • Neither agree nor disagree • Somewhat agree • Mostly agree • Totally agree	Ordinal	Family significantly influences the eating behavior of adolescents by food attitudes, preferences, and values, which later affect the food intake habits (Stroebele & De Castro, 2004). If an individual eats in their childhood with their family, they mostly adopt a "three-meal pattern." Most of the meals are cooked, eaten at home and shared with family members (Riou, Lefèvre, Parizot, Lhuissier, & Chauvin, 2015). In their adulthood, these people tend to have a defined eating pattern, and eat slowly and socially. Such people are less likely to be overweight or obese than those who did not eat with their family as children (Fischler, 2011; Paul Rozin, 2005).
When I was a child it was common that I ate my breakfast with my parents together.			
When I was a child it was common that I ate my lunch with my parents together.			
When I was a child it was common that I ate my dinner with my parents together.			The measurement was made on a 7-point Likert-type scale (Chrysochou et al., 2010a; Vagias, 2006).

Table 5: Survey items related to family values and qualities for social eating; own representation.

Items of Qualities for Social Eating			
Social Eater 1	**Indicator**	**Level of Measurement**	**Notes**
I mostly eat with friends or family or my partner when I am eating breakfast. I mostly eat with friends or family or my partner when I am eating lunch. I mostly eat with friends or family or my partner when I am eating dinner. I spend more time eating alone than with friends or family or my partner.	• Totally disagree • Mostly disagree • Somewhat disagree • Neither agree nor disagree • Somewhat agree • Mostly agree • Totally agree	Ordinal	These items were included to measure whether a person eats socially with friends, family, or their partner/spouse more often than they eat alone. According to De Castro (1997), humans eat a higher volume of food with spouses, families, or friends. On the other hand, Fischler (2011) outlines that eating with others may reduce the amount of food eaten, since it is a social interaction rather than only the consumption of food.
My meal breaks are shorter than 15 minutes.			Shorter meal breaks may be an indicator of eating faster, which means consuming more calories at once with less social interaction (Fischler, 2011).
			The measurement was made on a 7-point Likert-type scale (Chrysochou et al., 2010a; Vagias, 2006).

Table 6: Survey items related to qualities for type-1 social eating; own representation.

Items of Qualities for Social Eating			
Social Eater 2	**Indicator**	**Level of Measurement**	**Notes**
On a workday, I mostly eat alone. On the weekend I mostly eat alone. I eat more when I eat with my family or friend or partner. I eat less when I eat with social group that I don't know very well. Dinner is normally my biggest meal of the day.	• Totally disagree • Mostly disagree • Somewhat disagree • Neither agree nor disagree • Somewhat agree • Mostly agree • Totally agree	Ordinal	Many obese Americans claim that if they feel observed and watched, they eat less. They consume less food when they eat with a social group than when they eat alone. Therefore, eating alone increases the calorie intake and leads to higher obesity regardless of physical activity. In contrast, non-obese individuals purchase more food when in a social group (John M. De Castro, 1997; Paul Rozin, 2005). Consuming more snacks may promote obesity due to the high content of saturated fat, sugar, and salt in snack foods (Curie et al., 2012; Fischler, 1980; Paul Rozin, 2005). The measurement was made on a 7-point Likert-type scale (Chrysochou et al., 2010a; Vagias, 2006).

Table 7: Survey items related to qualities for type-2 social eating; own representation.

Items of Qualities for Social Eating			
Cooking	**Indicator**	**Level of Measurement**	**Notes**
I enjoy participating in several cooking or/and dining events. I more often cook than ordering ready-made meals or eating out of home.	• Totally disagree • Mostly disagree • Somewhat disagree • Neither agree nor disagree • Somewhat agree • Mostly agree • Totally agree	Ordinal	Cooking correlates with commensal eating further meaning such people eat with a lower focus on consuming food but further focus on building relationships, which causes eating slowly and mindfully, which is linked to less calorie intake and promoting being overweight (Danesi, 2018; Fischler, 2011).
Out-of-home eating I have more meals at local gastronomy or fast-food chains than at home.			The ambience in restaurants may increase the food intake (Stroebele & De Castro, 2004). Furthermore, compared to home-cooked meals, fast-foods tend to have more kilocalories, which may promote being overweight (Cutler et al., 2003; Dobbs et al., 2014).
Snacking habits I snack more than eating regular meals. I snack more when I am alone.			If an individual follows a regulated and defined meal pattern, they are less likely to snack (Fischler, 1980, 2011; Paul Rozin, 2005; Paul Rozin et al., 2011). In addition, in America, snacks are generally small and eaten alone, whereas meals are generally larger and more likely to be eaten in a social group (John M. De Castro, 1997; Paul Rozin, 2005; Verzeletti et al., 2010).
			The measurement was made on a 7-point Likert-type scale (Chrysochou et al., 2010a; Vagias, 2006).

Table 8: Survey items related to qualities for social eating: cooking, out-of-home eating, and snacking habits; own representation.

Socio-demographic Characteristics				
Dimension	**Question**	**Indicator**	**Level of Measurement**	**Notes**
Age	Your age	Open question	-	-
Gender	Your gender	• Female • Male • No answer	Nominal	-
Nationality	Your nationality or country of residence	Open question	-	The country of residence was also included to determine whether the respondent lived in the US or Europe. Some individuals may be a citizen of one country but a resident of another country. Individuals tend to adopt their lifestyle to the country they live in.

Table 9: Socio-demographic characteristics of participants: age, gender, and nationality; own representation.

Socio-demographic Characteristics				
Dimension	**Question**	**Indicator**	**Level of Measurement**	**Notes**
Educational status	Your educational status	• Primary education—Elementary School • Lower secondary education—Sekundarbildung/ Middle/ Junior High School • Upper secondary education—Sekundarbildung/ High School • Vocational professional education • Bachelor's or equivalent level • Master's or equivalent level • Doctoral or equivalent level	Nominal	Higher education status results in lifestyle behavioral changes in diet and physical activity (EUROSTAT, 2016; Lobstein & Jackson Leach, 2009a). For this reason, more educated people maintain a healthy weight compared to individuals with least education (Barry M. Popkin, 1998).
Household size	• Please enter the number of individuals in household under 18. • Please enter the number of individuals in household over 18.	Open question	-	Higher obesity rates are often positively related to food insecurity and larger household sizes (Shariff & Khor, 2005). Children from larger households are more likely to be obese than children of smaller households (Nackers & Appelhans, 2013).

Table 10: Socio-demographic characteristics of participants: educational status and household size; own representation.

Socio-demographic Characteristics				
Dimension	**Question**	**Indicator**	**Level of Measurement**	**Notes**
Size of local area	Your habitat has	• Less than 10,000 inhabitants (rural) • Between 10,000–100,000 inhabitants (semi-urban) • Between 100,000–1,000,000 inhabitants (urban) • More than 1,000,000 inhabitants (metropolitan)	Nominal	Living in a rural area correlates positively with a higher diabetes level, which may relate to higher obesity prevalence. This may occur due to little access to fresh, nutritious food with increasing food deserts in areas with less inhabitants (Bentley et al., 2018; J. A. Levine, 2011).
Household income	You consider your household income	• Low • Medium • High	Nominal	Obesity is especially a medical condition for low-income households (Barilla Center for Food and Nutrition, 2012; Dobbs et al., 2014; C. L. Ogden et al., 2017). Fresh and nutritious foods are more expensive, which pushes low-income societies to nourish with high-calorie products (Carlson & Frazão, 2012; Thøgersen, 2017).
The share of food expenses	The share of food expenses in your total monthly household expenditure is	• Up to 10% • Up to 20% • Up to 30% • Up to 40% • Above 40%	Nominal	The share of food expenses may not only indicate the amount of purchased food, but also the freshness and nutritiousness of it. Food in the US tends to be less expensive for the volume received compared to prices in many other countries (Paul Rozin et al., 2006, 2011). In France, an average household spends 13.8% of their monthly expenses on food, whereas Americans spend only 5.7% of their monthly household income on food (Fischler, 2011; Masson et al., 2016; Paul Rozin et al., 2006).

Table 11: Socio-demographic characteristics of participants, size of habitat, household income, and food expenses; own representation.

Socio-demographic Characteristics				
Dimension	**Question**	**Indicator**	**Level of Measurement**	**Notes**
Height	How tall are you (in cm or in feet)?	Open question	-	With height and weight, we calculated the BMI, which shows if an individual is underweight, healthy weight, overweight, or obese (Wilding & Wiley, 1998).
Weight	How much do you weigh (in kg or in pounds)?			
Diet type	Your diet type	• Belief-based diet (Buddhist, Hindu, Islamic, Kosher etc.) • Calorie and weight control diet (intermittent fasting, Weight Watchers, Atkins diet, Dukan diet, crash diet, detox diet etc.) • Diet followed for medical reasons (Gluten-free diet, diabetic diet, DASH diet, ketogenic diet, liquid diet etc.) • Mediterranean diet • Flexitarian diet • Vegetarian diet • Semi-vegetarian diet • Vegan diet • No specific diet	Nominal	Different diet types directly influence the calorie intake and may be a factor in a person being overweight or even obese (Barilla Center for Food and Nutrition, 2012; B. Butland et al., 2007; Makris & Foster, 2011; Paul Rozin et al., 2012).

Table 12: Height, weight and the diet type of participants, own representation.

7 Descriptive Statistics of the Sample

For the data analysis and results, we used SPSS (Statistical Package for the Social Sciences), a widely available and commonly used statistical software for quantitative data analysis. The SPSS software allows many different analyses such as descriptive statistics, chi-square statistics, correlation, and ANOVA with one database. For this reason, it is suitable for our data collection method (Arkkelin, 2014; Greasley, 2008).

The first task was coding the dataset for SPSS. We subsequently defined the variables from the hypotheses and research questions, which we aimed to test. After sorting the data, we started the tests. For further understanding, we built tables and pie charts on SPSS, where we show sociodemographic characteristics of the participants. Following tables show the sample distribution according to different sociodemographic characteristics more in detail. Table 13 presents that the majority of the participants were female with a representation of 76.1% while the males had a representation of 23.4%.

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	1	0.5	0.5	0.5
	Male	52	23.4	23.4	23.9
	Female	169	76.1	76.1	100.0
	Total	222	100.0	100.0	

Table 13: Gender distribution of the sample, own representation.

Table 14 shows that 29.3% of the sample were between the ages of 20 to 24 and 25 to 29 with a representation of 29.3% each while the least were between 35 and 39 years with a representation of 7.7%.

Age Group					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	20-24	65	29.3	30.0	30.0
	25-29	65	29.3	30.0	59.9
	30-34	28	12.6	12.9	72.8
	35-39	17	7.7	7.8	80.6
	>40	42	18.9	19.4	100.0
	Total	217	97.7	100.0	
Missing	System	5	2.3		
Total		222	100.0		

Table 14: Age group distribution of the sample, own representation.

As we see in figure 10, 60% of the participants were under 29 meaning most of the sample are young adults.
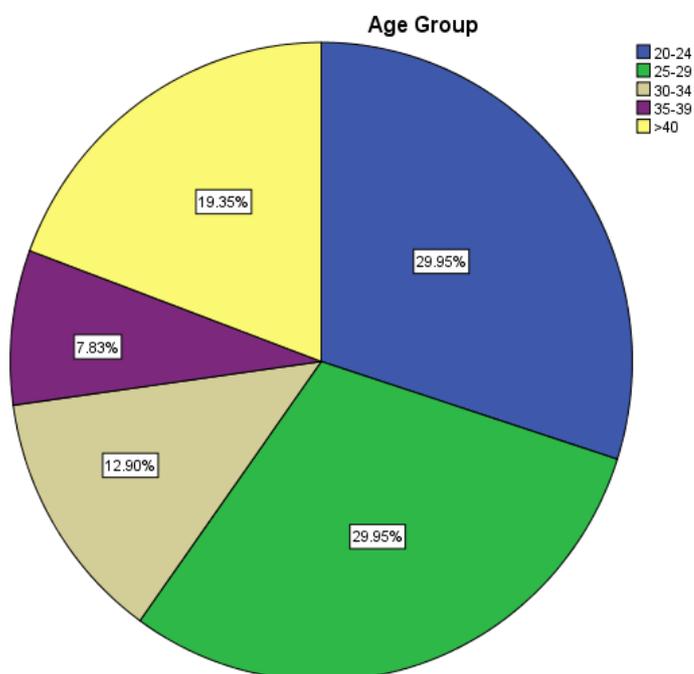
Figure 10: Age group distribution of the sample in percentages, own representation.

Our aim was to analyze the differences between Americans and Europeans, therefore we grouped various nationalities into two groups: Americans and Europeans. European group consists of 86 Austrian, 17 French, 6 Swedish, 6 Italian, 6 German, 3 British, one Swiss, one Dutch, one Belgian, one Croatian, one Hungarian and one Serbian. Table 15 shows the distribution further.

Nationality		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	American	91	41.0	41.2	41.2
	European	130	58.6	58.8	100.0
	Total	221	99.5	100.0	
Missing	System	1	0.5		
Total		222	100.0		

Table 15: Nationality distribution of the sample, own representation.

Figure 11 lets us understand that more than the half of the sample consists of Europeans. Americans are represented by 41% while the Europeans are represented by 58.6%.
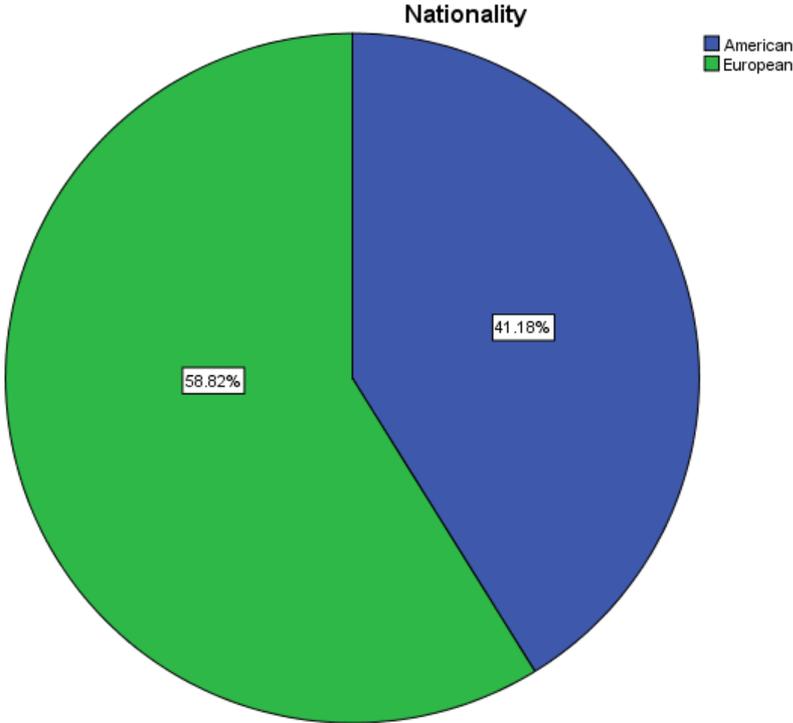
Figure 11: Nationality distribution of the sample in percentages, own representation.

Table 16 illustrates that the 46.8% of participants live in metropolitan areas with more than 1 million inhabitants. The least with a share of 17.1% live in rural and urban areas. Notably, respondents in the semi-urban areas have a share of 18.9%.

Habitat					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Less than 10,000 inhabitants (rural)	38	17.1	17.1	17.1
	Between 10,000-100,000 inhabitants (semi-urban)	42	18.9	18.9	36.0
	Between 100,000-1,000,000 inhabitants (urban)	38	17.1	17.1	53.2
	More than 1,000,000 inhabitants (metropolitan)	104	46.8	46.8	100.0
	Total	222	100.0	100.0	

Table 16: Habitat distribution of the sample, own representation.

Table 17 shows that 21.6% of participants households have only one adult. Households with the smallest share of 2.3% were those with nonadult individuals.

Individuals in household over 18					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	0	5	2.3	2.3	2.3
	1	48	21.6	21.6	23.9
	2	105	47.3	47.3	71.2
	3	31	14.0	14.0	85.1
	4	21	9.5	9.5	94.6
	5 and above	12	5.4	5.4	100.0
	Total	222	100.0	100.0	

Table 17: Household size distribution of the sample, own representation.

Table 18 shows 29.7% that of the respondents spent up to 20% of the total share of food expenses while 6.8% spend above 40%.

Share of food expenses in total					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Up to 20%	66	29.7	33.2	33.2
	Up to 30%	74	33.3	37.2	70.4
	Up to 40%	44	19.8	22.1	92.5
	Above 40%	15	6.8	7.5	100.0
	Total	199	89.6	100.0	
Missing	System	23	10.4		
Total		222	100.0		

Table 18: Share of food expenses distribution of the sample, own representation.

To classify the sample into different BMIs, we asked for the heights and weights of individuals, afterwards, with the data, we calculated the BMI for everyone and used this as a new variable. Table 19 and 20 show that 59% participants had a BMI from 18.5 to 24.9 meaning they were normal weighted whereas 23.9% were overweight and 10.8% were obese.

BMI Scale					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<18.5	14	6.3	6.3	6.3
	18.5-24.9	131	59.0	59.0	65.3
	25-29.9	53	23.9	23.9	89.2
	>29.9	24	10.8	10.8	100.0
	Total	222	100.0	100.0	

Table 19: BMI scale distribution of the sample, own representation.

BMI Classification					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Underweight	14	6.3	6.3	6.3
	Normal	131	59.0	59.0	65.3
	Overweight	53	23.9	23.9	89.2
	Obese	24	10.8	10.8	100.0
	Total	222	100.0	100.0	

Table 20: BMI classification of the sample, own representation.

Table 21 illustrates that only 9% of the sample follows a calorie and weight control diet. The majority with 42.2% follows no specific diet. Furthermore 36.6% of the sample minimize and/or avoid consuming meat by following vegan diet, vegetarian diet, semi-vegetarian diet or flexitarian diet.

Diet Type					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Calorie and weight control diet	20	9.0	9.0	9.0
	Diet followed for medical reasons	5	2.3	2.3	11.3
	Mediterranean diet	18	8.1	8.1	19.4
	Flexitarian diet	27	12.2	12.2	31.6
	Semi-vegetarian diet	32	14.4	14.4	46.0
	Vegetarian diet	19	8.6	8.6	54.6
	Vegan diet	3	1.4	1.4	56.0
	Belief-based diet (Buddhist, Hindu, Islamic, Kosher etc.)	4	1.8	1.8	57.8
	No specific diet	94	42.2	42.2	100.0
	Total	222	100.0	100.0	

Table 21: Diet distribution of the sample, own representation.

8 Results of Hypotheses

We derived five hypotheses from the literature. These hypotheses focus on the relationship between being overweight or obese and eating healthy or with others:

- Hypothesis 1: *The more often people eat out of home, the more they tend to be overweight or obese.*
- Hypothesis 2: *There is a positive correlation between frequent snacking and being overweight or obese.*
- Hypothesis 3: *The more people eat alone, the more they are overweight or obese.*
- Hypothesis 4: *The more often people eat together with others, the less overweight or obese they are.*
- Hypothesis 5: *The more people cook, the less overweight or obese they are.*

This chapter shows the hypotheses testing by introducing the analysis and results. To test the hypotheses, we used the chi-square test. The chi-square test, also called Pearson's chi-square test or the chi-square test of association, reveals the relationship between two categorical variables. Therefore, it is the statistic that is most suitable for testing the hypotheses (Garth, 2008; Greasley, 2008). To test the hypotheses correctly, we first recoded all "agree" categories, and all "disagree" categories. After that, we had three new variables: Agree, Neither Agree nor Disagree, and Disagree.

8.1 Hypotheses 1

The more often people eat out of home, the more they tend to be overweight or obese.

Here, the dependent variable is the "overweight and obesity", and the independent variable is the "out-of-home consumption". The variable "out-of-home consumption" consists of the response "I have more meals at local gastronomy or fast-food chains than at home". The null hypothesis (H0) is as follows: the two variables "out-of-home consumption" and "overweight and obesity", are not positively correlated or associated. The alternative hypothesis (H1) is the following: the two variables "out of home consumption" and "overweight and obesity" are correlated or associated. The level of significance is $\alpha = 5\% = 0.05$. Table 22, below, shows that the value of Pearson's chi-square is 10.534 with a probability (p) value of 0.005. This calculation shows that the probability of this distribution of values occurring by chance is less

than 0.005. As $p < \alpha$, that is, $0.005 < 0.05$, we accept the alternative hypothesis. As the results are statistically significant (i.e., at 5% level of significance), the sample data provides significant evidence to support the alternative hypothesis. Therefore, the variables "out-of-home consumption" and "overweight and obesity" are correlated or associated.

Hypothesis 1: Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.534 [a]	2	0.005
Likelihood Ratio	10.030	2	0.007
Linear-by-Linear Association	8.059	1	0.005
N of Valid Cases	222		
a. 1 cells (16.7%) have expected count lower than 5. The minimum expected count is 4.22.			

Table 22: Chi-square test table for Hypothesis 1.

After that, we used Pearson's correlation—a bivariate analysis used to measure the direction and magnitude of a relationship between two variables (Greasley, 2008). We also used correlation analysis to explain the level of strength between two associated variables. This type of analysis is used to determine the association or correlation between variables, the strength of the relationship, and the usefulness of the relationship in making estimates. The following points are the accepted guidelines for interpreting the correlation coefficient (Bewick, Cheek, & Ball, 2003; Greasley, 2008):

- 0 indicates no linear relationship.
- +1 indicates a perfect positive linear relationship—as one variable increases in its values, the other variable also increases in its values through an exact linear rule.
- -1 indicates a perfect negative linear relationship—as one variable increases in its values, the other variable decreases in its values through an exact linear rule.
- Values between 0 and 0.3 (0 and -0.3) indicate a weak positive (negative) linear relationship through a shaky linear rule.
- Values between 0.3 and 0.7 (-0.3 and -0.7) indicate a moderate positive (negative) linear relationship through a fuzzy-firm linear rule.

- Values between 0.7 and 1.0 (-0.7 and -1.0) indicate a strong positive (negative) linear relationship through a firm linear rule.

Following the guideline, we see that there is a weak positive linear relationship between "out-of-home consumption" and "overweight and obesity". Pearson's correlation coefficient (r) is 0.191, $p = 0.004$, and $\alpha = 0.05$. Table 23 shows the results more in detail. As the p-value is less than α, the results are significant. For the entire sample, the positive correlation shows that the more often people eat outside the home, the more likely they are to be overweight or obese. Therefore, we accept hypothesis 1.

Hypothesis 1: Correlations				
			Out of home consumption	Overweight and obesity
Overweight and obesity	Pearson Correlation		1	0.191**
	Sig. (2-tailed)			0.004
	N		222	222
Out of home consumption	Pearson Correlation		0.191**	1
	Sig. (2-tailed)		0.004	
	N		222	222
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 23: Table of correlations for Hypothesis 1.

8.2 Hypotheses 2

There is a positive correlation between frequent snacking and being overweight or obese.

Here, the dependent variable is the "overweight and obesity", and the independent variable is "snacking". The variable "snacking" consists of the response "I snack more than eating regular meals". The null hypothesis (H0) is as follows: the two variables "snacking" and "overweight and obesity", are not correlated or associated. The alternative hypothesis (H1) is the following: the two variables "snacking" and "overweight and obesity" are positively correlated or associated. The level of significance is $\alpha = 5\% = 0.05$.

Table 24 shows that the value of Pearson's chi-square is 6.431 with a *p*-value of 0.040. This calculation shows that the probability of this distribution of values occurring by chance is less than 0.040. As $p < \alpha$ (0.040 < 0.05), the accept the alternative hypothesis. The results are statistically significant at 5% level of significance, the sample data provides significant evidence to support the alternative hypothesis. Therefore, the variables "snacking" and "overweight and obesity" are correlated or associated.

Hypothesis 2: Chi-Square Tests			
	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	6.431[a]	2	0.040
Likelihood Ratio	6.190	2	0.045
Linear-by-Linear Association	3.192	1	0.074
N of Valid Cases	222		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.97.			

Table 24: Chi-square test table for Hypothesis 2.

To understand the correlation between overweight, obesity and snacking, we used Pearson's correlation. Table 25 shows that Pearson's correlation coefficient (*r*) is 0.12, $p = 0.074$, and $\alpha = 0.05$. Since *p* is greater than *α*, the results are not significant. In other words, there is insufficient evidence to prove that there is a positive association between snacking and overweight or/and obesity. Therefore, we reject hypothesis 2.

Hypothesis 2: Correlations			
		Overweight and obesity	Snacking
Overweight and Obesity	Pearson Correlation	1	0.120[*]
	Sig. (2-tailed)		0.074
	N	222	222
Snacking	Pearson Correlation	0.120[*]	1
	Sig. (2-tailed)	0.074	
	N	222	222
*. Correlation is significant at the 0.05 level (2-tailed).			

Table 25: Table of correlations for Hypothesis 2.

8.3 Hypotheses 3

The more people eat alone, the more they are overweight or obese.

The dependent variable here is the "overweigh and obesity", and the independent variable is eating alone. The variable "eating alone" consists of the response "I spend more time eating alone than with friends or family or my partner". The null hypothesis (H0) is as follows: the two variables "eating alone" and "overweight and obesity" are not positively correlated or associated. The alternative hypothesis (H1) is as follows: the two variables "eating alone" and "overweight and obesity" are positively correlated or associated. The level of significance is $\alpha = 5\% = 0.05$.

Table 26 shows that the value of Pearson's chi-square is 1.257 with a *p*-value of 0.533. This calculation shows that the probability of this distribution of values occurring by chance is less than 0.533. As $p > \alpha$ (0.533 > 0.05), we accept the null hypothesis. Here, the sample data do not provide significant evidence to support the alternative hypothesis. Therefore, the variables "eating alone" and "overweight and obesity" are not correlated or associated.

Hypothesis 3: Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.257[a]	2	0.533
Likelihood Ratio	1.255	2	0.534
Linear-by-Linear Association	1.210	1	0.271
N of Valid Cases	222		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.43.			

Table 26: Chi-square test table for Hypothesis 3.

Table 27 shows that Pearson's correlation coefficient (r) is 0.074, $p = 0.272$, and $\alpha = 0.05$. Since p is greater than α, the results are not significant, which means that there is insufficient evidence that the more people eat alone, the more they are overweight or obese. Therefore, we reject hypothesis 3.

Hypothesis 3: Correlations			
		Overweight and Obesity	Eating alone
Overweight and Obesity	Pearson Correlation	1	0.074[**]
	Sig. (2-tailed)		0.272
	N	222	222
Eating alone	Pearson Correlation	0.074[**]	1
	Sig. (2-tailed)	0.272	
	N	222	222
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 27: Table of correlations for Hypothesis 3.

8.4 Hypotheses 4

The more people eat together with others, the less overweight or obese they are.

The dependent variable here is the "overweight and obesity", and the independent variable is "social eating. For the variable "social eating" we combined the three responses: "I usually eat with friends or family or partner when I eat breakfast", "I usually eat with friends or family or partner when I eat lunch" and "I usually eat with friends or family or partner when I eat dinner". The null hypothesis (H0) is as follows: the two variables "social eating" and "overweight and obesity" are not positively correlated or associated. The alternative hypothesis (H1) is as follows: the two variables "social eating" and "overweight and obesity" are positively correlated or associated. The level of significance is $\alpha = 5\% = 0.05$.

Table 28 shows that the value of Pearson's chi-square is 3.105 with a *p*-value of 0.212. This calculation shows that the probability of this distribution of values occurring by chance is less than 0.212. As $p > \alpha$ (0.212 > 0.05), the *p*-value is greater than the significance level. For this reason, we accept the null hypothesis. Therefore, the variables "social eating" and "overweight and obesity" are not correlated or associated.

Hypothesis 4: Chi-Square Tests			
	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	3.105[a]	2	0.212
Likelihood Ratio	3.156	2	0.206
Linear-by-Linear Association	2.952	1	0.086
N of Valid Cases	222		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.08.			

Table 28: Chi-square test table for Hypothesis 4.

Table 29 shows that Pearson's correlation coefficient (*r*) is -0.116, $p = 0.086$, and $\alpha = 0.05$. Since *p* is greater than α, the results are not significant. There is insufficient evidence that the more often people eat together with others, the less overweight or obese they are. Therefore, we reject hypothesis 4.

Hypothesis 4: Correlations		Overweight and Obesity	Social Eating
Overweight and Obesity	Pearson Correlation	1	-0.116**
	Sig. (2-tailed)		0.086
	N	222	222
Social Eating	Pearson Correlation	-0.116**	1
	Sig. (2-tailed)	0.086	
	N	222	222
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 29: Table of correlations for Hypothesis 4.

8.5 Hypotheses 5

The more people cook, the less overweight or obese people are.

The dependent variable here is the "overweight and obesity", and the independent variable is "cooking". The variable "cooking" consists of the variable "I more often cook than ordering ready-made meals or eating out of home". The null hypothesis (H0) is as follows: The two variables "cooking" and "overweight and obesity" are not positively correlated or associated. The alternative hypothesis (H1) is as follows: the two variables "cooking" and "overweight and obesity" are positively correlated or associated. The level of significance is $\alpha = 5\% = 0.05$. Table 30 illustrates that the value of Pearson's chi-square is 9.483 with a *p*-value of 0.009. This calculation shows that the probability of this distribution of values occurring by chance is less than 0.009. As $p < \alpha$ (0.009 < 0.05), we accept the alternative hypothesis. The results are statistically significant—at 5% level of significance, the sample data provides significant evidence to support the alternative hypothesis. Therefore, the variables "cooking" and "overweight and obesity" are correlated or associated.

Hypothesis 5: Chi-Square Tests			
	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	9.483[a]	2	0.009
Likelihood Ratio	9.027	2	0.011
Linear-by-Linear Association	9.332	1	0.002
N of Valid Cases	222		
a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.92.			

Table 30: Chi-square test table for Hypothesis 5.

Table 31 shows that Pearson's correlation coefficient (*r*) is -0.205, $p = 0.002$, and $\alpha = 0.05$. Since *p* is less than *α*, we say that the results are significant. The negative correlation makes us understand that the more people cook, the less overweight or obese they are. Therefore, we accept hypothesis 5.

Hypothesis 5: Correlations		Overweight and Obesity	Cooking
Overweight and obesity	Pearson Correlation	1	-0.205**
	Sig. (2-tailed)		0.002
	N	222	222
Cooking	Pearson Correlation	-0.205**	1
	Sig. (2-tailed)	0.002	
	N	222	222
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 31: Table of correlations for Hypothesis 5.

9 Results of Research Questions

Our sample consists of two national groups, Americans and Europeans, from which we identified three consumer groups, Idealists, Pragmatists and Commons. We aim to understand the differences in between these groups in respect to the following research questions:

- RQ 1: *Are there differences between American and European individuals in respect to their healthy eating orientation?*
- RQ 2: *Do American and European individuals differ in respect to commensality?*
- RQ 3: *Are individuals who behave more commensal more prone to being overweight/obese?*
- RQ 4: *Are idealist consumers less overweight/obese than pragmatist consumers?*

Before answering the research questions, for the preparation of sample, we identified the outliers. In the data, we identified two outliners. These were two participants with BMIs of 47.8 and 61.2. Following we excluded the two. With this we ensured that all the remaining data results are consistent.

9.1 Research Question 1

Are there differences between American and European individuals in respect to their healthy eating orientation?

For the first research question, the answers were collected on a scale from 1 to 7: value 1 with label "Totally disagree", value 2 with label "Mostly disagree", value 3 with label "Somewhat disagree", value 4 with label "Neither agree nor disagree", value 5 with label "Somewhat agree", value 6 with label "Mostly agree" and value 7 with label "Totally agree".

To test the differences between Americans and Europeans in their healthy eating orientation, firstly, we made a principal component analysis with the four healthy-eating dimensions derived from Chrysochou et al. (2010). These dimensions are called indulgent, controlled, resigned and ordinary eating behaviors. Principal component analysis analyzes a data table representing observations described by inter-correlated dependent variables with the goal of

underlining the important information from the table. It is a multivariate technique which aims to serve as correspondence analysis and multiple factor analysis (Abdi & Williams, 2010).

With including the items of indulgent, controlled, ordinary and resigned eating, we applied factor analysis. Following, we interpret the KMO and Bartlett's Test to see if the items selected met the sampling adequacy of data necessary for factor analysis.

As table 32 shows further, the Bartlett's test was found to be statistically significant ($p = 0.000$). Hence, the items meet the sampling adequacy for factor analysis.

RQ1: KMO and Barlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.680
Bartlett's Test of Sphericity	Approx. Chi-Square	533.916
	df	66
	Sig.	0.000

Table 32: KMO and Bartlett's Test for RQ1, own representation.

Secondly, we interpret the Total Variance Explained table (see table 33). Here, we obtain that the variables are loaded into 4 components. These components represent the four theoretical dimensions or factors of resigned, indulgent controlled and ordinary.

RQ1: Total Variance Explained									
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.933	24.445	24.445	2.933	24.445	24.445	2.048	17.066	17.066
2	2.039	18.933	41.439	2.039	16.993	41.439	2.005	16.711	33.777
3	1.377	11.471	52.910	1.377	11.471	53.910	1.702	14.180	47.956
4	1.071	8.922	61.832	1.071	8.922	61.832	1.665	13.876	61.832
5	0.897	7.472	69.305						
6	0.779	6.491	75.796						
7	0.702	5.848	81.644						
8	0.584	4.870	86.513						
9	0.565	4.711	91.225						
10	0.427	3.562	94.787						
11	0.356	2.965	97.752						
12	0.270	2.248	100.000						

Extraction Method: Principal Component Analysis.

Table 33: Total Variance Explained RQ1, own representation.

After that, we applied the rotated component matrix. With the help of the table 34, we see that the item batteries of indulgent eating load heavily on component 1, controlled eating on component 2, ordinary eating in component 3 and resigned eating on component 4.

RQ1: Rotated Component Matrix[a]				
	Component			
	1	**2**	**3**	**4**
Indulgent eating1	0.694			
Indulgent eating2	0.881			
Indulgent eating3	0.854			
Controlled eating1		0.803		
Controlled eating2		0.785		
Controlled eating3		0.695		
Ordinary eating1			0.736	
Ordinary eating2			0.687	0.336
Ordinary eating3			0.760	
Resigned eating1				0.622
Resigned eating2				0.756
Resigned eating3				0.606

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table 34: Rotated Component Matrix for RQ1, own representation.

Following, statistical differences in healthy eating orientation between Americans and Europeans were tested with the analysis of variance (ANOVA). The ANOVA is the most appropriate tool since it is used in determining whether there are any statistically significant differences between the means of two or more unrelated/independent groups (Arkkelin, 2014).

Here, we used the four healthy-eating items (indulgent, controlled, ordinary and resigned) as dependent variables. The group (independent) variables are the two nationalities, Americans and Europeans.

Null hypothesis is (H0) is as follows: there are no differences between American and European individuals in respect to their healthy eating orientation. The alternative hypothesis (H1) is as follows: there are differences between American and European individuals in respect to their healthy eating orientation. The level of significance is $\alpha = 5\% = 0.05$.

RQ1: ANOVA		Sum of Squares	df	Mean Square	F	Sig.
Indulgent	Between Groups	1.056	1	1.056	1.051	0.307
	Within Groups	191.919	191	1.005		
	Total	192.975	192			
Controlled	Between Groups	5.029	1	5.029	5.113	0.025
	Within Groups	187.875	191	0.984		
	Total	192.905	192			
Ordinary	Between Groups	4.866	1	4.866	4.941	0.027
	Within Groups	188.086	191	0.985		
	Total	192.934	192			
Resigned	Between Groups	4.129	1	4.129	4.177	0.042
	Within Groups	188.826	191	0.989		
	Total	192.955	192			

Table 35: ANOVA for RQ1, own representation.

Table 35 shows that the *p*-values of controlled eating habit is 0.025, ordinary eating habit 0.027 and resigned eating habit 0.042. Since the *p*-values here are less than 0.05, we accept the alternative hypothesis for the three healthy-eating items. This means there are significant differences in controlled, ordinary, and resigned eating habits between Americans and

Europeans. On the other hand, the *p*-value of indulgent eating habit is 0.307, p > 0.05. Therefore, here we accept the null hypotheses and state that there are no statistical differences in indulgent eating behavior between Americans and Europeans.

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Minimum	Maximum
RQ1: Descriptives									
Indulgent	American	77	0.092	0.980	0.112	-0.131	0.314	-2.752	1.523
	European	116	-0.059	1.017	0.094	-0.246	0.128	-4.262	1.534
	Total	193	0.001	1.003	0.072	-0.142	0.143	-4.262	1.534
Controlled	American	77	0.197	0.986	0.112	-0.027	0.420	-2.262	2.062
	European	116	-0.133	0.996	0.093	-0.316	0.050	-2.575	1.937
	Total	193	-0.002	1.002	0.072	-0.144	0.141	-2.576	2.062
Ordinary	American	77	-0.194	0.998	0.114	-0.420	0.029	-2.131	2.604
	European	116	0.131	0.990	0.092	-0.051	0.313	-2.818	2.027
	Total	193	0.001	1.002	0.072	-0.141	0.144	-2.818	2.604
Resigned	American	77	0.181	1.157	0.132	-0.082	0.443	-1.775	3.671
	European	116	-0.118	0.870	0.081	-0.278	0.042	-1.657	2.910
	Total	193	0.001	1.002	0.072	-0.141	0.143	-1.775	3.671

Table 36: Descriptives for RQ1, own representation.

To understand the statistically significant differences in controlled, ordinary and resigned eating habits between Americans and Europeans, we interpreted the descriptive table. Table 36 shows that the Americans (MN = 0.197, SD = 0.986) have higher Mean-value at controlled eating item than Europeans (MN = -0.133, SD = 0.996). This means, that Americans eat more controlled than Europeans. Additionally, the difference in Mean-values at resigned eating of Americans (MA = 0.181, SD = 1.157) and Europeans (MN = -0.118, SD = 0.870) lets us understand that Americans are more resigned in their healthy-eating decisions. On the other hand, at the ordinary eating item, we see that Europeans (MN = 0.131, SD = 0.998) have the higher Mean-value than Americans (MA = -0.194, SD = 0.998) meaning Europeans eat more ordinary than Americans.

In addition, we made an additional table where we entered the original questions for each dimension and displayed the mean and standard deviation between Americans and Europeans. For each dimension on the four-eating orientation, Likert-scale questions were collected

ranging from 1 (Totally disagree) to 7 (Totally agree). Due to the nature of the Likert scale, the scales from 1 to 3 were negative in nature while the scales from 5 to 7 were positive in nature. The following tables show the deviation for each dimension more in detail.

RQ1: Resigned Eating among Nationalities					
		Nationality			
		American		European	
		Mean	Standard Deviation	Mean	Standard Deviation
Resigned Eating 1	I am not willing to spend extra money to follow a healthy diet.	2.96	1.98	2.53	1.70
Resigned Eating 2	I eat what is easily available regardless of healthiness.	2.37	1.40	2.26	1.27
Resigned Eating 3	I have given up searching for information about healthy food.	2.12	1.41	2.18	1.39
Resigned Eating 4	I am not interested in what is right and wrong in the different health debates.	2.26	1.39	2.17	1.38

Table 37: Resigned eating habits among Americans versus Europeans, own representation.

Table 37 shows that Europeans were more willing to spend extra money for a healthy diet. Additionally, they searched less information for a healthy diet. On the other hand, Americans cared further about the availability of the product and less interested in rules in the different health debates. In general, we can outline that both, Americans and Europeans, partly or mostly disagreed with the items.

RQ1: Indulgent Eating among Nationalities					
		Nationality			
		American		European	
		Mean	Standard Deviation	Mean	Standard Deviation
Indulgent Eating 1	I am inspired by foreign cuisine and other new ideas in my cooking.	6.15	0.98	5.89	1.40
Indulgent Eating 2	I am willing to spend extra time on my daily food consumption for the sake of culinary pleasure.	5.61	1.37	5.55	1.28
Indulgent Eating 3	I am willing to spend extra money on my daily food consumption for the sake of culinary pleasure.	5.43	1.50	5.50	1.31

Table 38: Indulgent eating habits among Americans versus Europeans, own representation.

Table 38 presents that Americans were more inspired by foreign cuisine and other new ideas and willing to spend extra money for culinary pleasure than Europeans whereas they were less interested in spending extra time in culinary pleasure. Both nationalities partly and mostly agreed with the items.

RQ1: Controlled Eating among Nationalities					
		Nationality			
		American		European	
		Mean	Standard Deviation	Mean	Standard Deviation
Controlled Eating 1	I have a strict control of that what I eat is healthy.	4.34	1.64	4.23	1.56
Controlled Eating 2	Health concerns play a role in everything I eat.	4.36	1.66	4.09	1.71
Controlled Eating 3	I always look for a scientific proof to accept whether a food product is healthy.	4.17	2.00	3.57	1.75

Table 39: Controlled eating habits among Americans versus Europeans, own representation.

Table 39 lets us assume that Americans behave more controlled when it comes to their healthy eating choices. They were more likely to follow strict rules for health and look for scientific proof for accepting the healthiness of food. Both nationalities partly agreed with the items.

RQ1: Ordinary Eating among Nationalities					
		Nationality			
		American		European	
		Mean	Standard Deviation	Mean	Standard Deviation
Ordinary Eating 1	There are so many rules and guidelines for what you should eat these days that it is impossible to live up to them.	3.94	1.82	4.51	1.74
Ordinary Eating 2	There are too many extreme attitudes regarding healthy eating.	5.33	1.53	5.29	1.40
Ordinary Eating 3	You cannot trust much of the information about what healthy eating is.	3.88	1.47	4.29	1.50

Table 40: Ordinary eating habits among Americans versus Europeans, own representation.

With the guidance of table 40, we assume that Europeans eat more ordinary than Americans except for Americans assumed more that there are too many extreme attitudes regarding healthy eating. Europeans assumed that there are too many rules about healthy eating. Additionally, they believed that the information about healthy food is less trustworthy.

9.2 Research Question 2

Do American and European individuals differ in respect to commensality?

Like RQ 1, also here, the answers were collected on a scale from 1 to 7: value 1 with label "Totally disagree", value 2 with label "Mostly disagree", value 3 with label "Somewhat disagree", value 4 with label "Neither agree nor disagree", value 5 with label "Somewhat agree", value 6 with label "Mostly agree" and value 7 with label "Totally agree".

To test the differences between Americans and Europeans in respect to commensality, we ran factor analysis using the all the eating with family items (eating with family1, 2, 3, 4) and commensal eating orientation (social eater 1,2,3,4,5,6,7,8,9,10) we derived from various literature. Following, we interpret the KMO and Bartlett's Test. Table 41 shows that the Bartlett's test was found to be statistically significant ($p = .000$). Hence, the items meet the sampling adequacy for factor analysis.

RQ2: KMO and Barlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.712
Bartlett's Test of Sphericity	Approx. Chi-Square	734.348
	df	91
	Sig.	0.000

Table 41: KMO and Bartlett's Test for RQ2, own representation.

Secondly, we interpreted the Total Variance Explained table (see table 42), which illustrates that the variables were loaded into 2 components.

RQ2: Total Variance Explained									
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.340	23.861	23.861	3.340	23.861	23.861	3.293	23.523	23.523
2	1.976	14.114	37.974	1.976	14.114	37.971	2.023	14.452	37.974
3	1.389	9.921	47.896						
4	1.320	9.431	57.326						
5	0.976	6.969	64.296						
6	0.849	6.066	70.361						
7	0.739	5.279	75.640						
8	0.738	5.269	80.909						
9	0.657	4.696	85.605						
10	0.524	3.740	89.345						
11	0.455	3.250	92.595						
12	0.415	2.964	95.559						
13	0.391	2.791	98.350						
14	0.231	1.650	100.000						

Extraction Method: Principal Component Analysis.

Table 42: Total Variance Explained RQ2, own representation.

After that, we applied the rotated component matrix. With the help of the table 43, we see that eating with family (eating with family items) loaded heavily on component 2 while commensal eating orientation (social eating items) loaded heavily on component 1.

RQ2: Rotated Component Matrix[a]		
	Component	
	1	2
Eating with family 1		0.611
Eating with family 2		0.810
Eating with family 3		0.673
Eating with family 4		0.635
Social eater 1	-0.674	
Social eater 2	-0.717	
Social eater 3	-0.612	
Social eater 4	0.877	
Social eater 5		
Social eater 6	0.688	
Social eater 7	0.729	
Social eater 8		
Social eater 9		
Social eater 10		

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table 43: Rotated Component Matrix for RQ2, own representation.

Following, we tested the statistical differences in commensal eating habits between Americans and Europeans with ANOVA. Here, our new dependent variables are "Eating with family" (eating with family items) and "Commensal eating" (social eater items). The group (independent) variables are the two nationalities, Americans and Europeans.

The null hypothesis (H0) states that Americans and Europeans do not differ in respect to commensality. The alternate hypothesis (H1) states that Americans and Europeans differ in respect to commensality. The level of significance is $\alpha = 5\% = 0.05$.

RQ2: ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Eating with Family	Between Groups	0.007	1	0.007	0.007	0.932
	Within Groups	217.160	217	1.001		
	Total	217.167	218			
Commensal Eating	Between Groups	6.326	1	6.326	6.473	0.012
	Within Groups	212.065	217	0.977		
	Total	218.391	218			

Table 44: ANOVA for RQ2, own representation.

Table 44 shows that the *p*-value of eating with family item is 0.932. Since the *p*-value is greater than the significance level of 0.05, we accept the null hypothesis and state that there are no statistically significant differences in eating with family habits between Americans and Europeans. Yet, the *p*-value of the commensal eating between Americans and Europeans is 0.012. The *p*-value is less than 0.05, therefore we accept the alternative hypothesis. There is a statistically significant difference in commensal eating habits between Americans and Europeans.

RQ2: Descriptives						95% Confidence Interval for Mean			
		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Eating with Family	American	90	-0.013	1.025	0.108	-0.228	0.202	-1.925	2.006
	European	129	-0.001	0.983	0.087	-0.173	0.170	-1.767	2.160
	Total	219	-0.006	0.998	0.067	-0.139	0.127	-1.925	2.160
Commensal Eating	American	90	-0.207	0.948	0.100	-0.406	-0.008	-3.067	1.574
	European	129	0.138	1.016	0.089	-0.039	0.315	-3.236	1.554
	Total	219	-0.004	1.001	0.068	-0.137	0.130	-3.236	1.574

Table 45: Descriptives for RQ2, own representation.

Earlier, we derived from the literature, that Europeans eat more commensal than Americans (Paul Rozin, 2005; Paul Rozin et al., 2011). To see if our tests support this hypothesis, we looked into the descriptive table. Table 45 shows the differences in Mean-values of Americans and Europeans in their commensal eating habits. Americans have the lower Mean-value (MN = -0.207, SD = 0.948) than Europeans (MN = 0.138, SD = 1.016). This lets us understand that Europeans indeed eat more commensal than Americans.

In addition, we made an additional table where we entered the original questions for each dimension and displayed the mean and standard deviation between Americans and Europeans. For each dimension on the eating with family orientation and social eating orientation, Likert-scale questions were collected ranging from 1 (Totally disagree) to 7 (Totally agree). Due to the nature of the Likert scale, the scales from 1 to 3 were negative in nature while the scales from 5 to 7 were positive in nature.

The following tables show the deviation for each dimension more in detail.

RQ2: Family values among Nationalities					
		Nationality			
		American		European	
		Mean	Standard Deviation	Mean	Standard Deviation
Eating with Family 1	My childhood memories involve family gatherings with cooking or/and dining events.	5.93	1.48	5.96	1.50
Eating with Family 2	When I was a child, it was common that I ate my breakfast with my parents together.	4.36	2.15	5.05	2.07
Eating with Family 3	When I was a child, it was common that I ate my lunch with my parents together.	3.24	1.95	4.65	2.09
Eating with Family 4	When I was a child, it was common that I ate my dinner with my parents together.	6.21	1.24	6.00	1.47

Table 46: Eating with family habits among Americans versus Europeans, own representation.

Table 46 illustrates striking results: Europeans ate as children breakfast and lunch more with their parents whereas Americans ate dinner more with their parents. Furthermore, Americans had less gatherings with cooking/dining events as children than Europeans.

RQ2: Social Eating among Nationalities					
		Nationality			
		American		**European**	
		Mean	**Standard Deviation**	**Mean**	**Standard Deviation**
Social Eater 1	I mostly eat with friends or family or my partner when I am eating breakfast.	3.48	2.27	3.71	2.14
Social Eater 2	I mostly eat with friends or family or my partner when I am eating lunch.	4.00	2.07	4.47	1.96
Social Eater 3	I mostly eat with friends or family or my partner when I am eating dinner.	5.87	1.57	5.46	1.73
Social Eater 4	I spend more time eating alone than with friends or family or my partner.	3.72	2.15	3.94	2.15
Social Eater 5	My meal breaks are shorter than 15 minutes.	2.41	1.44	2.61	1.71
Social Eater 6	On a workday I mostly eat alone.	4.12	2.09	4.32	2.05
Social Eater 7	On the weekend I mostly eat alone.	2.63	1.97	2.38	1.76
Social Eater 8	I eat more when I eat with my family or friends or partner.	4.38	1.86	4.32	1.73
Social Eater 9	I eat less when I eat with a social group that I don't know very well.	3.91	1.94	4.05	1.92
Social Eater 10	Dinner is normally my biggest meal of the day.	4.72	1.88	4.17	1.99

Table 47: Social eating habits among Americans versus Europeans, own representation.

Table 47 presents that Europeans were less alone when eating breakfast and lunch. On the other hand, Americans were less alone when eating dinner. Furthermore, more Americans considered dinner as the biggest meal of the day.

Interestingly, Europeans spent more time while alone- eating than commensal and they ate more alone on a workday with breaks less than 15 minutes whereas they ate more commensal on the weekend. Both Americans and Europeans ate more when they eat commensal, yet Americans tended to eat more in amount when not alone than Europeans. Europeans, on the other hand, ate less amount of food when they are not comfortable in the eating social group.

9.3 Research Question 3

Are individuals who behave more commensal more prone to being overweight/obese?

The answers were collected on a scale from 1 to 7: value 1 with label "Totally disagree", value 2 with label "Mostly disagree", value 3 with label "Somewhat disagree", value 4 with label "Neither agree nor disagree", value 5 with label "Somewhat agree", value 6 with label "Mostly agree" and value 7 with label "Totally agree".

To test RQ 3, we ran a cluster analysis by defining two groups with all the social eating items (eating with family1, 2, 3, 4) and commensal eating orientation (eating alone 1,2,3,4,5,6,7,8,9,10). To test this research question, we used hierarchical cluster analysis since it helps us assigning of items into different number of clusters (Řezanková, 2009).

In doing hierarchical cluster analysis, we chose ward method, because it is the most suitable method when equally sized clusters are expected. In addition, it uses the total summary of squares within clusters (Malo, 2015). To test for statistical significance with ANOVA, we used the new group (independent) variables as "alone eating" and "commensal eating". The dependent variable is the BMI Scale, which is a metric variable and calculated earlier for each participant with their height and weight data.

RQ3: Ward Method		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Alone eating	95	43.2	43.2	43.2
	Commensal Eating	125	56.8	56.8	100.0
	Total	220	100.0	100.0	

Table 48: Hierarchical Cluster Analysis, Ward Method for RQ3, own representation.

After that, ANOVA was carried out to determine if there are statistically significant differences in alone eaters' versus commensal eaters' BMIs. Null hypothesis is (H0) is as follows: individuals who behave more commensal are not more prone to being overweight/obese. The alternative hypothesis (H1) is as follows: individuals who behave more commensal are more prone to being overweight/obese. The level of significance is $\alpha = 5\% = 0.05$.

RQ3: ANOVA		Sum of Squares	df	Mean Square	F	Sig.
BMI Scale	Between Groups	37.523	1	37.523	1.794	0.182
	Within Groups	4558.764	218	20.912		
	Total	4596.287	219			

Table 49: ANOVA for RQ3, own representation.

Table 49 shows that the p-value 0.182. Since the p-value is greater than 0.05, we accept the null hypothesis meaning individuals who behave more commensal are not more prone to being overweight/obese.

To see which group has higher BMIs, we interpreted a descriptive table. Table 50 shows that individuals who eat alone have a Mean-value of 24.547, whereas individuals who eat commensal have a lower Mean-value of 23.714. This lets us state that individuals who eat alone show a tendency to have higher BMI.

RQ3: Descriptives						95% Confidence Interval for Mean			
		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
BMI Scale	Alone Eating	95	24.547	5.171	0.530	23.494	25.601	13.00	44.30
	Commensal Eating	125	23.714	4.062	0.363	22.994	24.433	17.50	38.40
	Total	220	24.074	4.581	0.309	23.464	24.682	13.00	44.30

Table 50: Descriptives for RQ3, own representation.

9.4 Research Question 4

Are idealist consumers less overweight/obese than pragmatist consumers?

Like other research questions, the answers were collected on a scale from 1 to 7: value 1 with label "Totally disagree", value 2 with label "Mostly disagree", value 3 with label "Somewhat disagree", value 4 with label "Neither agree nor disagree", value 5 with label "Somewhat agree", value 6 with label "Mostly agree" and value 7 with label "Totally agree".

To test the RQ 4, firstly, we applied a K-Means Cluster. K-Means Cluster is the suitable method to start because we aimed to identify three consumer groups using the four healthy-eating dimensions. Because we used the same dimensions as Crysouchou et al. (2010) and because they identified three consumer groups which they named pragmatists, commons, and idealists, we did the same for the purpose of better comparisons.

Therefore, we use the four healthy-eating dimensions (indulgent, controlled, ordinary and resigned) as variables to input three clusters. After running the analysis with cluster membership, we ran a custom table to see how the clusters compare in terms of means among the healthy-eating items.

RQ4: Cluster Number of Case					
		Indulgent	**Controlled**	**Ordinary**	**Resigned**
		Mean	**Mean**	**Mean**	**Mean**
Cluster Number of Case	1	-0.038	0.012	0.091	0.090
	2	0.004	0.084	-0.120	-0.101
	3	0.022	-0.105	0.073	0.053

Table 51: Cluster number of case table for RQ4, own representation.

Table 51 shows that cluster 2 has high Mean-values on "indulgent" and "controlled" whereas cluster 1 has high Mean-values on "ordinary" and "resigned". Chrysochou et al. (2010) state in their research that pragmatists have higher ordinary and resigned values but lower controlled value. Idealists on the other hand, perform higher indulgence and controlled values but lower

resigned values (Chrysochou et al., 2010a). With the guidance of Chrysochou et al. (2010) and with the cluster membership of the subjects, we formed three groups, Group 1 "Pragmatist", Group 2 "Idealist", and Group 3 "Common". Table 52 shows the cluster number of the three consumer groups more in detail. Evidently, Commons formed the majority of the respondents with a representation of 39.5% while Pragmatists the least with a representation of 26.4%.

RQ4: Cluster Number of Consumer Groups					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Pragmatist	58	26.4	26.4	26.4
	Idealist	75	34.1	34.1	60.5
	Common	87	39.5	39.5	100.0
	Total	220	100.0	100.0	

Table 52: Cluster number of three consumer groups for RQ4, own representation.

Furthermore, figure 12 elaborates that nearly the half of the sample are Idealists who behave indulgent and controlled at their food choices (Chrysochou et al., 2010a).
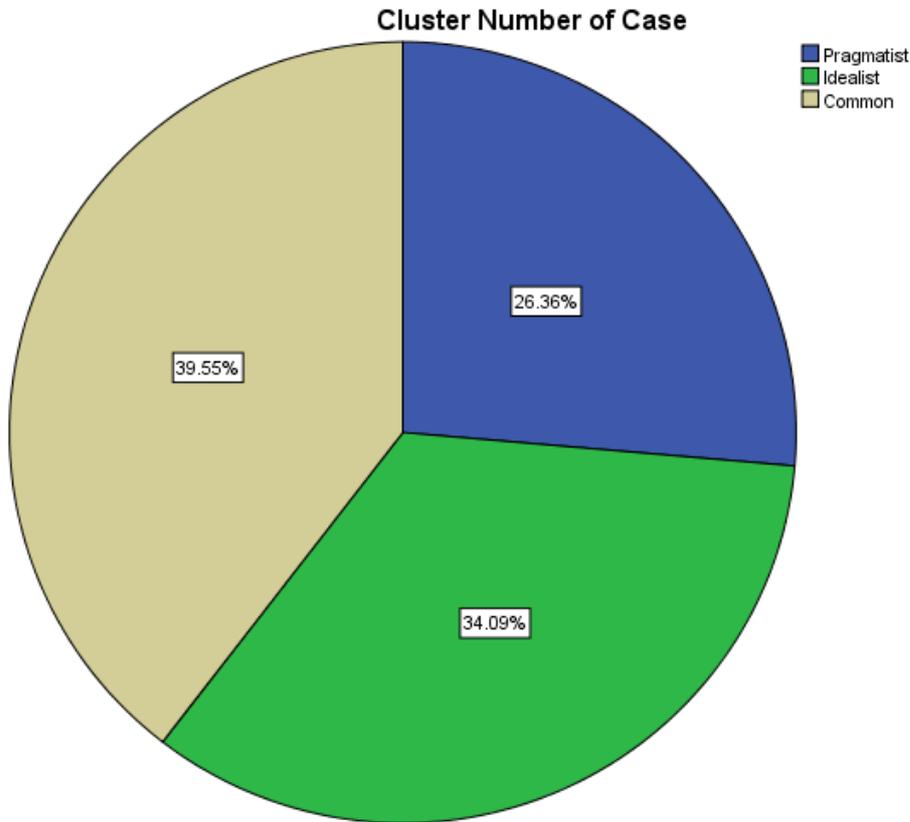
Figure 12: Cluster number of three consumer groups in percentages for RQ4, own representation.

After defining the group membership as variable, we ran ANOVA to test the statistical differences in three different consumer groups at their BMIs. The dependent variable is the BMI Scale, which is a metric variable and calculated earlier for each participant with their height and weight data.

Null hypothesis is (H0) states that Idealists are not less overweight/obese than Pragmatists. The alternative hypothesis (H1) states that Idealists are less overweight/obese than Pragmatists. The level of significance is $\alpha = 5\% = 0.05$.

RQ4: ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	93.334	2	46.667	2.249	0.108
BMI Scale Within Groups	4502.953	217	20.751		
Total	4596.287	219			

Table 53: ANOVA for RQ4, own representation.

Table 53 shows that the *p*-value is 0.108. Since the *p*-value is greater than 0.05, we accept the null hypothesis. Therefore, we outline that idealist consumers are not less overweight/obese than pragmatist consumers. We assume that eating controlled and disciplined by following rules and principles, strict health and diet choices with less joy and satisfaction in eating do not cause less overweight/obesity in individuals (Fischler, 2011; Paul Rozin et al., 2011).

To understand the BMI distribution of the three consumer profiles, we built a descriptive table. Table 54 illustrates that the Idealists have the highest Mean-value of 24.900, whereas Common group has the lowest Mean-value of 23.378. This lets us understand that individuals who eat indulgent and controlled have the tendency to have higher BMI-value than Pragmatists, who show ordinary and resigned eating habits.

RQ4: Descriptives									
						95% Confidence Interval for Mean			
		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
BMI Scale	Pragmatist	58	24.048	4.547	0.597	22.852	25.243	16.00	44.30
	Idealist	75	24.900	5.012	0.579	23.747	26.053	13.00	38.40
	Common	87	23.378	4.129	0.443	22.498	24.258	17.50	38.40
	Total	220	24.074	4.581	0.309	23.464	24.682	13.00	44.30

Table 54: Descriptives of cluster of three consumer groups for RQ4, own representation.

Figure 13 shows that 42.67% of idealist consumers are overweight/obese, whereas 36.21% of pragmatist are dealing with overweight/obesity.
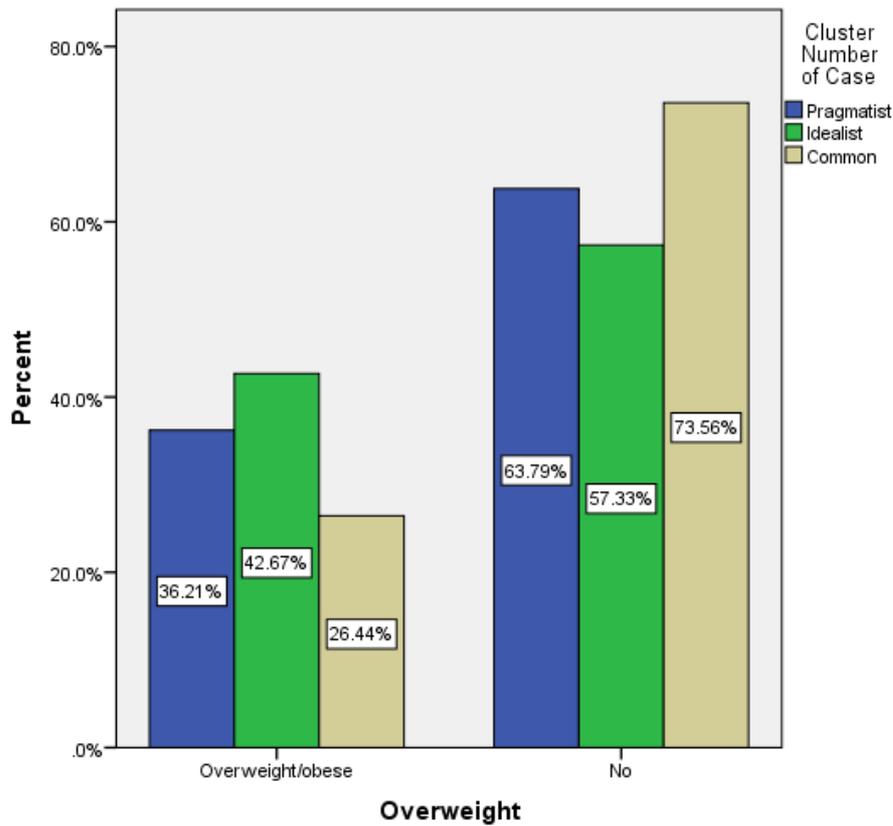
Figure 13: Overweight distribution for three consumer groups in percentages, own representation.

Figure 14 shows that Americans tend to be more Pragmatists (36.67%) than Idealists (27.76%). On the other hand, figure 15 illustrates that Europeans tend to be more Idealists (37.98%) than Pragmatists (19.38%).
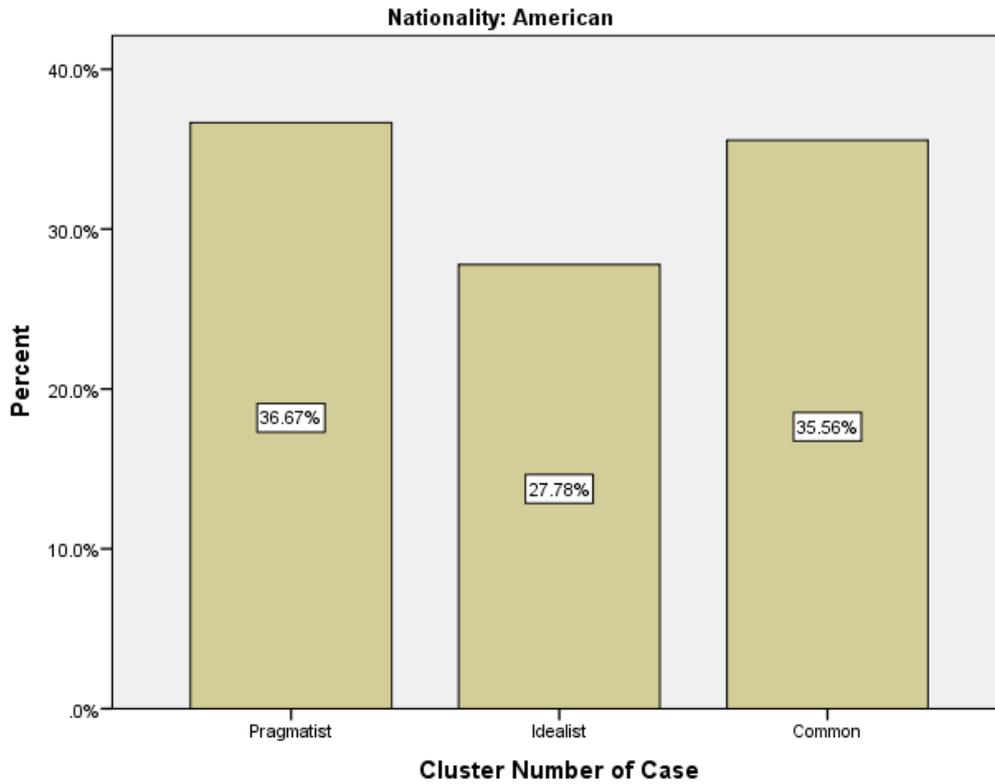
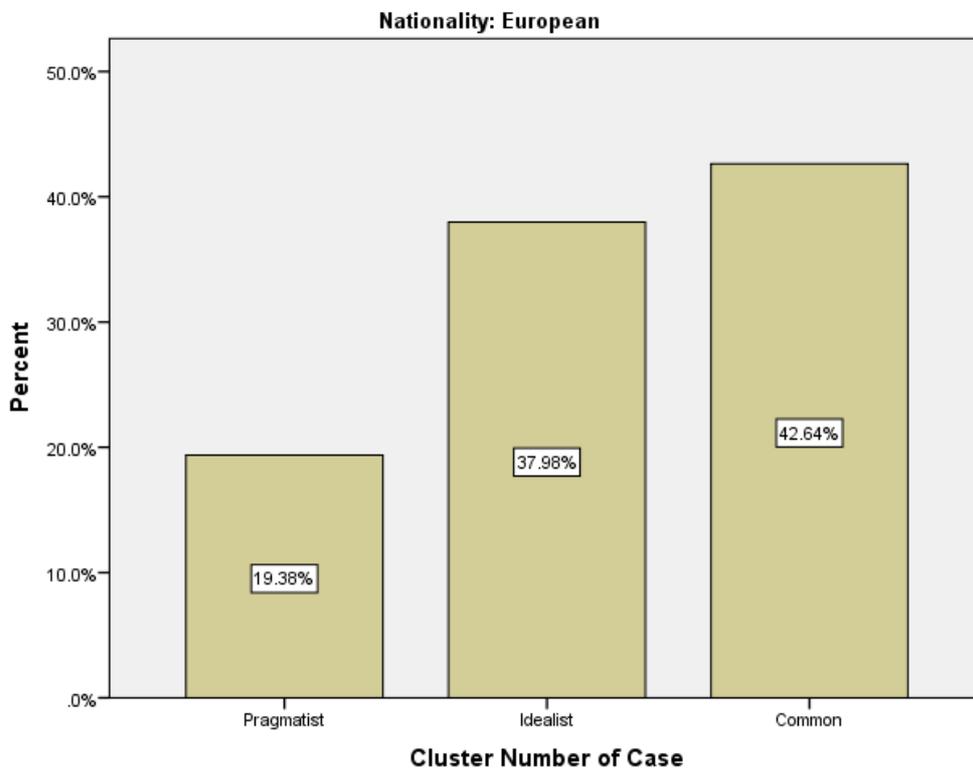Figure 14: Distribution of three consumer groups among Americans in percentages, own representation.

Figure 15: Distribution of three consumer groups among Europeans in percentages, own representation.

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10 Discussion

As we earlier elaborated: this thesis presents a cross-continental study of the US and Europe, investigating the healthy-eating and commensal-eating approaches of individuals with various global food culture backgrounds. At testing the hypotheses and research questions, we focused on understanding the differences in overweight and obesity prevalence due to different eating habits under American and European students.

Hypothesis testing showed that respondents who snacked more and ate alone more often were not more overweight or obese than the others. Furthermore, social eaters were not less overweight or obese than others. Nevertheless, the more often people ate out of home, the more likely they were to be overweight or obese. In addition, the more people cooked, the less likely they were to be overweight or obese.

Testing the research questions showed that commensal eaters show a tendency to have higher BMI. Furthermore, idealist consumers tend to have higher BMI than Pragmatists and Commons. There are significant differences in Americans' and Europeans' healthy eating habits and eating with family habits yet no significant differences in their commensal eating habits.

In this chapter, we discuss the results in relation to the existing literature. Many hypotheses deried from literature could not be confirmed. One explanation for the rejection of our hypotheses could be the small sample size. There were 222 adult students who participated in the online questionnaire, which is far from being a representative sample of the U.S. and/or European populations. It can be expected that differences in eating behaviors between U.S. and European students are smaller than for the general population, since both belong to the "culture of students", meaning they undergo academic education and have a similar life style. From literature we also know that the better educated the less prevalence for obesity. Due to the small sample size and the fact that the majority of respondents were students, the survey generated less variance in the responses. Also it can be assumed that the distribution from low to high BMI values is smaller in our survey compared to the general population in the USA and Europe. Less variance in the data makes it harder to identify significant differences.

10.1 Out-of-home Consumption and Overweight/Obesity

Previous research has found that eating out-of-home may lead to a higher prevalence of obesity. Our results support this observation.

The first explanation for this could be the content of out-of-home consumption. Food purchased "ready-to-eat" at a supermarket or fast-food chain tends to be highly processed. To ensure a longer shelf life, such foods contain higher levels of fatty acids, saturated fats, sugars, sodium, and salts, which increase energy intake regardless of activity level (Cutler et al., 2003). Due to the higher intake of ultra-processed foods, people may consume an excess of fast and processed foods that contain more kilocalories than fresh natural foods (J. A. Levine, 2011; Swinburn et al., 2019). This leads to a higher intake of saturated fat and sugar, which not only causes people to become overweight or obese but is also positively correlated with diabetes (Bentley et al., 2018).

On the other hand, today, in restaurants, people consume not only unhealthy foods, but also can consume healthy and low-calorie foods. Superfoods, organic foods, and plant-based diets are all the rage. Such foods are lower in calories, high in micronutrients, and friendly to the environment and animals (Barilla Center for Food and Nutrition, 2012; Reid et al., 2008). Individuals with a higher awareness of their health and food choices tend to prefer those foods that are available outside the home. These consumers are highly conscious of health and the environment, so more healthy eating trends have emerged. These trends have even created a new market category that has been successfully marketed to date. This has contributed to the development and proliferation of foods that are not only easy and quick to prepare, but also nutritious, healthy, fresh, and tasty (Reid et al., 2008). An indicator of this is that in 2014, McDonald's sales and annual profits in the U.S. decreased by 15%. But the market shares of fast-food chains such as Chipotle, Shake Shack, Panera Bread, and others have increased. This is because these artisanal fast-food chains are listening to their target audience, Millennials, and are trying to source mostly organic, "responsibly raised" products (Neate, 2015).

The second reason why out-of-home consumption may lead to higher obesity prevalence is the availability of take-out food and thus the increase in consumption of such foods. Today, most people have an extensive stream of options and technologies in their daily lifestyles, including increased access to online delivery and food services (Pearcey & De Castro, 2002; Paul Rozin et al., 2011; The Nielsen Company, 2018). In addition, most restaurants offer home delivery service-and some even drive-through service-so people no longer need to be physically active. Access to food now requires less time and physical activity than in the past (Anna Saba et al., 2014). This results in less overall energy consumption, which can lead to a negative kilocalorie balance and thus weight gain (Cutler et al., 2003; Dobbs et al., 2014).

The third cause can be the prolonged duration and quantity of eating when eating in a restaurant or café. Eating and drinking in restaurants or cafes with family, friends, or a partner can significantly expand the amount of food consumed. For most people, sharing food or eating together is a personal experience rather than a professional one (Fischler, 2011; Paul Rozin, 2005; Paul Rozin et al., 2006, 2011). In addition, the ambiance in restaurants leads to more social interaction than in one's own home with a higher duration of shared meals (Stroebele & De Castro, 2004). Because of social interaction, individuals who eat with others in a restaurant or café tend to consume higher amounts of food and drink (J. M. De Castro & De Castro, 1989).

Another issue is the different portion sizes in different countries. In France, for example, portion sizes in restaurants are 25% smaller than in many other European countries. In contrast, Americans buy food in large quantities and order large restaurant meals, resulting in greater intake of food and calories (Paul Rozin, 2005; Paul Rozin et al., 2006). This demonstrates the large difference in caloric intake between countries, which plays a significant role in obesity regardless of eating outside the home.

10.2 Snacking and Overweight/Obesity

Not only has the content of snacks changed, but so has the frequency of snacking. Piernas and Popkin (2010) highlight that in the U.S., over the past two decades, the average percentage of energy intake from snacking has increased to 24%. Habits such as nighttime snacking, consumption of particularly salty snacks and energy drinks, and increases in snack portion sizes have increased the prevalence of obesity (John M. De Castro, 2009; Piernas & Popkin, 2010).

Another problem arises from the different snacking habits of individuals with different BMI classifications. Bertéus Forslund et al. (2005) observed that obese Swedish individuals consumed food or drink six times a day, of which 29.2% were snacks. Meanwhile, healthy individuals consumed food or drink less often during the day, with a lower proportion of snacks-25.5%. In addition, obese individuals reported significantly higher energy intake than health-weighted individuals, and obese snackers chose especially sweet and fatty foods (Bertéus Forslund et al., 2005). Therefore, obese individuals tend to gain more weight with their snack choices than others.

However, the results of our data analysis show that for the entire sample, snacking does not necessarily promote overweight or obesity.

The main limitation here may be that we measured how often and how much people snack, but we did not measure caloric intake from snacking. Eating large amounts of snacks can promote

obesity because of their high saturated fat, sugar, and salt content. In addition, since the mid-1990s, people have begun to consume more salty snacks, chips, and nuts than dairy products and fruits. This leads to a large intake of calories from a small amount of food (Curie et al., 2012). As a result, people gain weight without realizing or thinking that they have just snacked-they have not consumed a substantial amount of food. However, some snacks contain more kilocalories than normal meals (Grippo et al., 2020).

Another problem could be the reliability of the self-reported data. We could not control whether students were honest when reporting personal information such as height and weight. This might have influenced the BMI classification of the sample, which could bias our results.

One possible explanation is that some individuals only snack without eating regular meals. Individuals who only eat snacks may have a lower total kilocalorie intake, so they do not tend to be more overweight. However, snacking in addition to large meals may lead to higher kilocalorie intake, which in turn may lead to obesity. In our survey, we asked about snacking habits but not about regular meal habits, i.e., whether participants ate only regular meals, only snacks, or both regular meals and snacks. This question would have helped us determine total energy intake per day, which may have a greater impact on obesity.

Another explanation could be the content of snacks. Snacks are typically processed foods high in saturated fat, sugar, and kilocalories (Curie et al., 2012; Grippo et al., 2020). However, not all snacks are like this. Homemade snacks may have fewer calories and be healthier; therefore, such snacks may not promote obesity. In addition, the trend toward organic, fresh, and nutritious foods also applies to snacking (Reid et al., 2008).The shift in snacking habits toward healthier snacks over the past decade must be acknowledged. Among other things, there has been a shift from energy drinks to various beverages with fewer calories, from regular chips to air-dried vegetable chips, which help individuals maintain their health by consuming less saturated fat, sugar, and salt.

10.3 Commensal Eating versus Eating Alone and Overweight/Obesity

The literature shows significant conflict about the relationship between commensal eating and overweight/obesity. Claude Fischler (1980, 2011) and Paul Rozin (2005, 2006) found that eating with others can prevent obesity because of its social facilitation. Here, eating goes beyond consumption and becomes more of a pleasure and experience of sharing personal information and building a relationship with other individuals. Therefore, eating together may

encourage eating in longer sessions, which may prevent overweight or obesity (Fischler, 1980, 2011).

On the other hand, John M. De Castro (1994, 1997) found that people with spouses, families, or friends may eat a higher amount of food. In addition, eating within a social group may cause higher food intake than eating alone, and higher social interaction may directly increase meal duration. For this reason, consumers in a commensal eating group tend to gain more weight (John M. de Castro, 1994; John M. De Castro, 1997).

Both assume that commensal eating increases meal duration (John M. de Castro, 1994; John M. De Castro, 1997; Fischler, 1980, 2011). However, there are conflicting theories in the research regarding the relationship between verbal interaction and total food intake. Fischler (1980, 2011) outlines that as the length of the meal increases, the length of verbal interaction during eating increases. The higher verbal interaction may reduce food intake (Fischler, 2011). De Castro, on the other hand, concludes that verbal interaction can increase not only the length of the meal but also the total amount of food consumed (John M. de Castro, 1994). As a result, it is not clear whether individuals consume more food when they interact more during the meal (Edwards, 2013).

Several research papers indicate that eating alone can promote overweight or obesity. The main cause is mindless eating, which can indirectly lead to higher calorie intake. People usually eat alone when they are in a hurry, taking a short break or doing something else. When they are in a hurry, eating quickly can lead to high caloric intake in a short period of time, which can later lead to weight gain (Danesi, 2018; John M. de Castro, 1994; Fischler, 2011; J. Ogden et al., 2013; Sobal & Nelson, 2003).

In many people's minds, eating on the go, standing, walking, or on the street is not considered a meal. For consumption to be considered a meal, people need a defined place, social group, period, and minimal sequence of meals. People tend to consume food to satisfy their hunger by eating additional meals or snacks during the day (John M. de Castro, 1994; John M. De Castro, 1997; Fischler, 2011).

The other main problem with mindless eating is caused by watching TV: the more distracted a person is, the more food they eat. Watching TV while eating distracts not only from hunger, but also from the feeling of satiety and the process of eating (J. Ogden et al., 2013).

Based on Claude Fischler's research, we hypothesized that eating together with family and friends would prevent obesity. Individuals who eat commensally are not necessarily protected from becoming overweight or obese, but they are not necessarily more prone to becoming overweight/obese. In addition, the results of our data analysis show that for the overall population, eating alone does not necessarily promote overweight or obesity. In further data analysis, we found that solo eaters have a BMI of 24.547, while commensal eaters have one of 23.714. Both groups are of normal weight. Nevertheless, the alone eaters have the slightly higher BMI.

The BMI of an individual who eats commensal may be influenced by other factors, such as social group characteristics. Some individuals mimic their commensal eating groups when eating. Individuals who eat with someone who eats healthily are more likely to eat healthily as well, so if some members of a social group eat healthily and low in calories, the other members will do the same (John M. de Castro, 1994). This behavior can help them avoid excessive weight gain and prevent obesity.

Another factor is the nature of the relationships between individuals in the commensal group. De Castro found that eating with friends, family, and partners increases the amount of food consumed by 14%, 22%, and 23%, respectively, while a commensal eating group of colleagues or classmates causes individuals to eat 16% less food than when they eat alone (John M. De Castro, 1997). These individuals may consume more food when they are alone. In addition, eating alone brings more pleasure and less stress to some because it frees them from having to follow the social norms and manners that are insisted upon in social settings. This habit is particularly prevalent among young European adults (Danesi, 2018). In addition, many overweight Americans claim that they eat less when they feel watched and observed. They eat less food when eating with a social group than when eating alone. This can lead such individuals to consume more calories and unhealthier foods, which can lead to weight gain (John M. De Castro, 1997; Paul Rozin, 2005).

Another indicator is the person's BMI classification. Obese people tend to eat more when they are alone. However, obese people also eat more when they are with another obese person; they eat less when they are with a non-obese person. At the same time, healthy-weight people eat less when they are alone (John M. de Castro, 1994; John M. De Castro, 1997). Thus, eating alone does not necessarily promote a higher intake of kilocalories in every individual-the BMI classification of the consumer plays a significant role. Healthy-weight individuals prevent

obesity by eating alone because they consume less food. However, for obese individuals, eating alone can promote obesity.

Not only the amount of food, but also social pressure plays a role in a higher BMI. Many individuals state that they feel watched when eating with others. Therefore, they eat less food than they normally would (J. M. De Castro & De Castro, 1989). A study by Paul Rozin (2005) found that 13.5% of obese American women and 4% of obese American men are embarrassed to buy a candy bar in a store because they fear being judged for their eating habits. Eating alone and not being "watched" in an environment where they feel less insecure may give individuals the freedom to consume what they want, when they want. It is possible that some individuals may consume more junk food that is higher in saturated fat, sugar, and kilocalories, causing them to indirectly gain more weight.

10.4 Cooking and Overweight/Obesity

Previous findings from literature show that cooking can prevent obesity. French people tend to cook even when they are alone. On the other hand, Americans tend to try to get food as quickly as possible (Danesi, 2012; Fischler, 2011; Paul Rozin et al., 2006). France has one of the lowest obesity rates in Europe, while the United States has a high obesity rate (Dobbs et al., 2014; World Health Organization, 2017). Our results support the literature and state that the more frequently people cook, the less overweight or obese they are.

One reason why cooking can prevent obesity is related to the ingredients used in homemade meals. When cooking, people tend to use fresh and natural foods. Compared to pre-made, ultra-processed, store-bought foods, homemade foods have fewer kilocalories but higher nutritional value, which leads people to maintain their weight. They also have a lower risk of becoming overweight or obese when they eat healthy, low-calorie foods with fewer canned or pre-made ingredients. Additionally, cooking can prevent obesity if consumers eat the same amount despite the higher duration of eating activity (Danesi, 2012, 2018; Fischler, 1980).

Another factor could be the physical activity involved in cooking. To order food, people just need to use the Internet, a sedentary activity. However, to cook, people go to a market or supermarket to buy food, carry the food home, prepare the fresh ingredients, cook, serve and eat. Afterwards, they must clean up the dishes and the kitchen. In contrast, when they order out-of-home, they can simply grab the cutlery, eat, and discard the waste. Thus, cooking requires more energy expenditure. This can prevent obesity by regulating the caloric deficit (Danesi, 2012, 2018; Paul Rozin, 2005).

10.5 Americans and Europeans regarding Healthy Eating Orientation

According to the literature, Europeans, especially the French, tend to be commensal and experiential in their eating habits, with their focus not on consumption but on the pleasure, satisfaction, taste, and social aspects of eating. On the other hand, Americans tend to be perfectionists in their healthy eating habits and believe that eating decisions are individual choices that should be guided by rules and health characteristics (Fischler, 2011; Paul Rozin, 2005). This means that for Europeans, healthy eating orientation is not the most important aspect of eating, while Americans tend to follow discipline to eat healthy.

Regarding differences in healthy eating orientations between the European and the American sample, our results show that the American respondents are more controlled and resigned to eating than the European respondents, while European respondents exhibit more ordinary habits than the Americans. There were no significant differences in the indulgent eating habits of American and European respondents. Nevertheless, after testing, we found that American respondents were more extreme in their eating habits.

According to our findings, Americans are seeking more information for healthy eating and are paying attention to wider availability. In addition, they behave in a more controlled manner when it comes to their healthy food choices. They are more likely to follow strict health rules and look for scientific evidence to support the acceptability of healthy foods. However, they are also more likely to be inspired by other people's cuisines and are willing to spend extra money to do so. We can explain this by outlining the differences in the culinary history and diversity of American and European cuisines. European cuisines are more established cuisines with more variety and seasonal ingredients, but Americans tend to consume more quick and easy-to-prepare meals (Paul Rozin, 2005).

Europeans are willing to spend more money on a healthy diet and more time on culinary pleasures than Americans. For Europeans, food culture is not only eating, but also socializing, connecting, and cooking (Fischler, 1980, 2011). Therefore, they can enjoy the entire culinary experience by spending more time and creating other social facilitations. Unlike Americans, Europeans in our sample tend to eat more indulgent and believe there are too many rules for healthy eating. They also do not follow strict rules for healthy eating and put less effort into following a healthy diet overall. Still, they are healthier than Americans, which is quite interesting.

Although the French population has the highest total caloric intake from saturated fat, with 14.6% coming from animal fat. In addition, the rate of cardiovascular disease in France is 30% lower than in the US (Paul Rozin, 2005; Paul Rozin et al., 2006; World Health Organization, 2017). The US has an extremely high obesity rate of 36.2% (Dobbs et al., 2014; World Health Organization, 2017). That French people are healthier without even trying may be due to the freshness of the foods they eat. They eat less prepackaged food and cook more. They also eat seasonal and fresh foods by enjoying the food and taking more time to eat it (Paul Rozin, 2005; Paul Rozin et al., 2012).

Another aspect of being healthier is that not only does healthy eating play a big role, but so does physical activity. Europeans tend to be more mobile by driving and walking when running errands, while Americans drive and order more (Paul Rozin, 2005). Physical activity is paramount to a healthy lifestyle and should not be forgotten.

10.6 Americans and Europeans as Idealists and Pragmatists

Chrysochou et al. (2010) segmented food consumers into idealists, pragmatists, and ordinary consumers. Idealistic consumers follow strict principles and rules in their dietary habits based on their strong opinions and knowledge about healthy eating. Their behavior can be described as mostly controlled and indulgent. On the other hand, pragmatic consumers, who have ordinary and resigned behaviors, are more likely to compromise their diet-related lifestyle choices rather than follow principles and rules. Pragmatic consumers also seek out experiences (Chrysochou et al., 2010a).

The literature suggests that idealistic consumers are less likely to be overweight than pragmatic consumers. However, our results show that idealist consumers are not less likely to be overweight/obese than Pragmatists. In our results, idealists have the highest BMI of 24.900, while the pragmatist group has the lowest of 23.378. In addition, 42.67% of idealist consumers are overweight/obese, while 36.21% of pragmatic consumers struggle with overweight/obesity. We conclude that idealists in our sample tend to have higher BMI than pragmatists, although the BMI differences are moderate.

Despite their discipline and commitment to healthy eating, idealistic individuals are not less overweight than other consumers. We hypothesize that controlled and disciplined eating by following rules and principles, strict health and nutrition choices with less pleasure and satisfaction in eating will not result in less overweight/obesity in individuals. Obesity is caused

not only by how much a person eats, but also how they eat (Fischler, 2011; Paul Rozin et al., 2006, 2011). Claude Fischler and Paul Rozin further support this hypothesis in their studies.

Previous literature has found a tendency for Americans to be more idealistic and Europeans to be more pragmatic. However, our results showed that Americans in our sample tend to be more Pragmatists (36.67%) than idealists (27.76%) and Europeans tend to be more Idealists (37.98%) than Pragmatists (19.38%). The sample is predominantly Commons at 39.55%, followed by Idealists 34.09% and Pragmatists 26.36%.

One reason for the deviation of the results here can be the small sample size and that most of the participants are students. Since students are more up-to-date and therefore follow food trends, we can understand the deviation of the results with the increasing popularity of the healthy food trends in Europe. Nowadays, food trends such as organic food, super food, healthy food, slow food, local food, raw food, and many more are continuously increasing in Europe. Restaurants and cafes offering such foods are multiplying, even big supermarkets have such foods in their assortment. From "Young and Urban" to "Superfood" and with the increased awareness of healthy food in Europe, idealists among Europeans are also increasing. Chrysochou et Al. (2010) outline that consumer with more health interest also shows a higher interest in the naturalness of food, which is explained by a higher research and discussion on such information. This shift in the popularity of healthy foods may have led to a higher proportion of idealists in Europe than in the US.

Another dilemma here could be the understanding of natural foods versus healthy foods. Americans and Europeans have different understandings of natural foods. Rozin et Al. (2012) surveyed Americans and Europeans on their identification with the term "natural": 44 French chose "Not influenced by industry," while only 6 Americans did. Further, 20 French were in favor of the term "fresh" and 7 were in favor of "organic." Only 7 Americans were for "fresh" and 4 for "organic" (Paul Rozin et al., 2012).

But is the food also healthier? The label "healthy," especially in the context of overweight/obesity, does not necessarily mean fewer calories. On the other hand, these products sometimes contain more sugars, fats, and salts than an organic or organic product that looks unhealthy (John M. De Castro, 2009). So pragmatic Europeans who eat fresh and tasty foods may be healthier than idealistic Americans.

Although Europeans showed higher scores in ordinary habits, they showed less resigned habits than Americans. Nevertheless, a Pragmatist behaves further ordinary and resigned than an

Idealist (Chrysochou et al., 2010a). This may have influenced our clustering to cluster Pragmatists as Commons.

Furthermore, in our results, both Americans and Europeans showed both experiential and functional habits in their food choices, which affects segmentation because it is less defined. This resulted in 35.56% of Americans and 42.64% of Europeans being commons, meaning that the four healthy eating segments are more evenly distributed than the Idealist and Pragmatist consumer groups. Commons show moderate interest in healthy eating and are more ordinary, experiential consumers than Idealists.

10.7 Americans and Europeans regarding Commensality

Americans and Europeans have different behaviors when it comes to commensality. For Americans, eating is an individual act that represents personal freedom and choice. For them, dealing with the purchase and consumption of food should be rational and scientific. Viewing food and eating decisions as individual and free habits leads Americans to eat more alone (Chrysochou et al., 2010a; Fischler, 2011; Masson et al., 2016; Pearcey & De Castro, 2002; P. Rozin et al., 1999; Paul Rozin, 2005; Paul Rozin et al., 2011).

For Europeans, eating goes further than just consuming food. They take a more relaxed approach to their food choices. It is a social and public event that involves activities such as cooking together and eating together. They believe in good meals in a social group, meals from different cuisines, and incorporate social facilitation into their eating habits. In addition, the duration of meals increases depending on the number of people in the social group. Another characteristic of Europeans is that they believe in pleasure, experience, enjoyment, satisfaction, and freshness of food when eating. For this reason, Europeans are more likely to be social eaters with more communal eating values than Americans (Chrysochou et al., 2010a; Fischler, 1980, 1988; Paul Rozin et al., 2012, 2011).

Our results supported the literature and showed that Europeans eat more commensal than Americans. When measuring the eating habits with family of Americans and Europeans, we saw the striking result that Americans ate more dinners with family in childhood. Europeans had more family gatherings, breakfasts, and lunches with their families as children than did Europeans. We conclude that for Europeans, eating with family had another value: connecting and maintaining a good relationship with other family members. Interestingly, even in adulthood, Europeans are less likely to be solo eaters at breakfast and lunch; rather, they are usually at meals with friends, family, or partners.

However, for Americans, dinner is more important. As De Castro (2009) also approximated, dinner is the largest meal for Americans. Our results also show that more Americans agree that not only in their childhood, but also today, dinner is the biggest meal of the day. They also tend to eat dinner with friends, family, or partners rather alone (John M. De Castro, 2009).

Although we outline that Europeans are more commensal eaters, when we measured individuals' social eating habits on a workday, the results interestingly changed. More specifically, Americans have longer meal breaks and eat less alone. This can be discussed with the different approaches to work life. Americans have the mentality of teamwork and see their colleagues as friends. This work style can lead to Americans having more meal events with their colleagues, which can also have a longer duration.

On the other hand, our results show that Americans are less likely to eat socially on weekends than Europeans. This means that Europeans enjoy the social aspect of eating or drinking more than Americans and like to spend their free time in a social group while consuming food. Our further finding is that both Europeans and Americans eat more food when they eat with others, but Americans eat more than Europeans, which makes us understand that Europeans' concentration is not on the consumption of food, but on the social aspect of eating, the taste of the food, and the overall experience.

11 Conclusion

Obesity is a serious global issue that must be managed. It is not only a problem for the obese individual, but also for society (Dobbs et al., 2014; The Economist, 2018).

The aim of this thesis was to investigate the problem of obesity by comparing American and European students in their approaches to healthy and commensal diets. To do this, we first defined the main drivers of obesity.

Obesity is caused by an imbalance of energy intake and expenditure. When individuals have higher energy intake than expenditure, they gain weight, which can lead to becoming overweight or obese (Wilding & Wiley, 1998). Second, geography determines food availability and variety. When individuals do not have access to low-calorie, fresh, and healthy foods, they are more likely to be overweight or obese (Barilla Center for Food and Nutrition, 2012; Swinburn et al., 2019). Another barrier associated with obesity is income and education. Individuals with lower incomes and lower levels of education are more likely to live in food deserts and have difficulty accessing healthy, nutritious, and fresh foods (Bentley et al., 2018; J. A. Levine, 2011). Foods with low-cost calories contain more sugars, fats, and salts, have lower nutritional value, and contribute to lower-quality diets (Darmon & Drewnowski, 2015b). For this reason, individuals with lower incomes and less education are more likely to be obese, have type 2 diabetes, or suffer from hypertension (Lobstein & Jackson Leach, 2009a).

Globalization has significantly changed people's food-related lifestyles through urbanization, an increase in sedentary lifestyles, more advanced marketing systems, and developed food technologies (Cutler et al., 2003; Lobstein & Jackson Leach, 2009a). Today, food marketing is negatively shaping people's eating behaviors by recommending ultra-processed foods and snacks high in sugar and saturated fat. This change in the global food supply, with an increase in industrial ultra-processed foods, can lead people to eat unhealthier and become overweight or obese (Barilla Center for Food and Nutrition, 2012; Darmon & Drewnowski, 2015a; Lobstein & Jackson Leach, 2009a).

Our focal point has been the relationship between European and U.S. food cultures and obesity. The food culture of a particular group, society, or nation significantly influences an individual's eating behavior. Individual and shared values define individuals' food-related lifestyles (FRL) and attitudes toward healthy eating (Grunert et al., 1993; Reid et al., 2008). Grunert et al. (1993) examined the mental construct of individuals and introduced various aspects of FRL. Later, Chrysochou et al. (2010) defined different concepts of people about food as indulgent,

controlled, resigned, and ordinary; from this, we derived the healthy eating instrument of our questionnaire. They also segmented consumers into three groups: Idealists, Pragmatists, and Common. Idealistic consumers are mainly controlled and focus on the health functions of food such as vitamins, minerals, fatty acids, etc., but also show a sensual and indulgent approach to food, while pragmatic consumers show ordinary and resigned behavior (Chrysochou et al., 2010a), which means that food is not an important issue for them and they ignore health recommendations.

In this thesis, we conducted a cross-continental study with American and European participants, analyzing their healthy eating and social eating qualities. In our sample of 222 participants, 91 participants are US Americans, 41.4%, while 130 participants were Europeans, 58.6%. Our results show that the Americans in our sample are more controlled and resigned to eating than the Europeans, while the Europeans show more ordinary habits than the Americans. There were no significant differences in indulgent eating habits between American and European participants. In contrast to the literature, our results show that in our sample, Americans tend to be more Pragmatists (36.67%) than Idealists (27.76%) and Europeans tend to be more Idealists (37.98%) than Pragmatists (19.38%).

In terms of different consumer types, we deduced from the literature that idealistic consumers tend to be less overweight than pragmatic consumers. However, regardless of nationality, our results showed that Idealists, with an average BMI of 24.90, are slightly more likely to be overweight or obese in our sample than Pragmatists, with an average BMI of 24.05. In our sample, 42.67% of Idealists are overweight/obese, while 36.21% of Pragmatists are overweight/obese. It seems that following strict rules, principles, and dietary guidelines regarding bio-medical aspects of food, does not prevent a person from being overweight or obese. However, we do assume that focusing on the experience of eating – with feelings of pleasure, satisfaction, and enjoyment – can prevent being overweight or obese.

We also focused on commensality-the concept that people eat in social groups (Fischler, 1988, 2011; Fischler & Masson, 2009; Masson et al., 2016; Paul Rozin et al., 2006, 2011; Sobal & Hanson, 2011; Thøgersen, 2017). Commensality is highly related to overweight or obesity. European studies suggest that commensal eating may prevent obesity due to its social facilitation. In contrast, American studies on commensality and obesity concluded that eating with others may increase the amount of food consumed. Therefore, we analyzed the social eating habits of Americans and Europeans with the questionnaire. The significantly different obesity rates in various countries regardless of healthy eating characteristics suggest that

obesity depends not only on what people eat but also on how, when, how often, and with whom they eat (Chrysochou et al., 2010a; Fischler, 1988, 2011; Masson et al., 2016; Paul Rozin, 2005; Paul Rozin et al., 2006; Sproesser et al., 2019). Results from our online survey indicate that individuals who eat more frequently with others are not more likely to be overweight or obese. Nor, however, does eating alone necessarily promote overweight or obesity. The individual's BMI in relation to commensality is influenced by other factors: the characteristics of the social group, the nature of the relationships among individuals in the commensal group, the content of the food, and the individual's BMI classification (J. M. De Castro & De Castro, 1989; John M. de Castro, 1994; Fischler, 2011). Healthy-weight individuals eat less when alone, but obese individuals eat more when alone because they feel watched and judged (J. M. De Castro & De Castro, 1989). Therefore, we assume that eating alone does not necessarily promote weight gain in every individual, but only in obese individuals.

We also measured the relationship between other social eating habits and obesity, for which there was less existing literature to build on. In our study we observed that eating out-of-home promotes overweight or obesity. We explain this by the unhealthy content and higher availability of "ready-to-eat" foods that are packed with saturated fat and sugar, which causes individuals to gain further weight. In addition, we believe that eating away from home may increase the amount of food and drink consumed due to higher time spent in a restaurant or café because of social facilitation and ambience.

Second, snacking does not necessarily promote overweight or obesity in our study. One reason for this could be the type and number of snacks, which are factors that influence the total caloric intake of individuals. Individuals who only snack and consume healthier snacks have a lower total kilocalorie intake than individuals who snack and eat regular meals. Therefore, these individuals are not necessarily more likely to be overweight (Reid et al., 2008).

Another factor is cooking. Our data showed that cooking prevents obesity. We believe that people are more likely to maintain their weight because of the fresh and natural foods and ingredients used in cooking. In addition, the physical activity involved in cooking makes all the difference compared to ordered food. It helps people prevent overweight or obesity by leading to higher energy outtake and a better caloric deficit (Danesi, 2012).

The purpose of this master's thesis was to investigate the relationship between European and U.S. food cultures in relation to commensal and healthy eating habits and obesity. Europeans typically view eating as a social, public activity that includes a broader range of activities such as cooking and sharing food together, whereas Americans typically view eating as an individual

act involving discipline, nutrition, and information (Fischler, 2011; Paul Rozin, 2005; Paul Rozin et al., 2006; Sproesser et al., 2019). Americans also typically value quantity over quality in their diet. The wide availability and variety of foods in the US compared to Europe is remarkable (Paul Rozin, 2005). The US has one of the highest obesity rates in the world: 36.2% (Dobbs et al., 2014; World Health Organization, 2017).

Europeans, especially the French, are more relaxed and public with their food choices and they tend to eat commensally. They eat experientially with a primary focus on culinary pleasure, satisfaction, taste, freshness, and commensal aspects of food (Fischler, 2011; Paul Rozin, 2005; Paul Rozin et al., 2006; Sproesser et al., 2019). They see food as a social and public event. However, Americans expect more options than the French when it comes to food choice and availability (Paul Rozin, 2005).

It is striking that Americans, who culturally eat for nutritional or functional reasons, are more obese than French, who eat for pleasure, taste, and satisfaction rather than for health reasons (Chrysochou et al., 2010a; Fischler, 2011; Paul Rozin et al., 2011). Our findings on differences in commensal behavior explain that Europeans eat more commensal than Americans. They enjoy the social aspect of eating together, and their childhood also consists of more commensal eating activities.

Our results indicate that neither healthy eating orientation nor commensal eating pattern directly promote or prevent obesity. In our results, there was insufficient evidence to suggest that the more frequently people eat together with others or alone, the less or more overweight or obese they are. Nevertheless, we found that in our sample, alone eaters reported an average BMI of 24.58, while commensal eaters reported one of 23.71. Both groups were of normal weight. The alone eaters had the slightly higher BMI.

We want to emphasize the importance of physical activity for healthier living. Europeans tend to be more mobile, riding bicycle and walking when running errands, while Americans drive more. Americans like a convenient lifestyle where they can choose from a variety of easily accessible choices (Paul Rozin, 2005). It could be that Americans who visit gyms every day think they are healthy and athletic, but it is the daily lifestyle that counts. Nevertheless, further studies should be conducted on dietary style and caloric balance in different global cultures/nationalities. We believe that physical activity is an essential component of healthy life choices that should not be forgotten and should be further included in the research field.

Further research on the relationship between commensality and obesity is critical. The literature in this area of research is limited. Another limitation may be the conflicting findings and

arguments in the literature on this topic. The dilemma here was that there are two main different assumptions about the relationship between commensality and overweight/obesity. This could be explained by the different habitats of the two researchers. Claude Fischler does research in France, while John M. De Castro does research mainly in the US. These two nationalities show differences in their commensal eating habits, which could lead to the opposing viewpoints on commensality. Due to our European background, we decided to follow the approach of other European researchers (mainly Claude Fischler) to derive our hypotheses and research questions.

European researchers suggest that commensality prevents obesity, while the American argument is that commensal eating promotes obesity. The European approach is based mainly on evidence from France, which limits the data base for research. Further research on commensal eating habits in other countries should be conducted. In addition, the French and American research approaches may differ based on their understanding of food.

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Appendix

Appendix A1: Questionnaire

Section A: Qualities for Healthy Eating: Resigned

A1. Please indicate your rejection or agreement with the following statements.

	Totally disagree	Mostly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Mostly agree	Totally agree
I am not willing to spend extra money to follow a healthy diet.	☐	☐	☐	☐	☐	☐	☐
I eat what is easily available regardless of healthiness.	☐	☐	☐	☐	☐	☐	☐
I have given up searching for information about healthy food.	☐	☐	☐	☐	☐	☐	☐
I am not interested in what is right and wrong in the different health debates.	☐	☐	☐	☐	☐	☐	☐

Section B: Qualities for Healthy Eating: Indulgent

B1. Please indicate your rejection or agreement with the following statements.

	Totally disagree	Mostly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Mostly agree	Totally agree
I am inspired by foreign cuisine and other new ideas in my cooking.	☐	☐	☐	☐	☐	☐	☐
I am willing to spend extra time on my daily food consumption for the sake of culinary pleasure.	☐	☐	☐	☐	☐	☐	☐
I am willing to spend extra money on my daily food consumption for the sake of culinary pleasure.	☐	☐	☐	☐	☐	☐	☐

Section F: Qualities for Social Eating: Social Eater

F1. Please indicate your rejection or agreement in the following statements.

	Totally disagree	Mostly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Mostly agree	Totally agree
I mostly eat with friends or family or my partner when I am eating breakfast.	☐	☐	☐	☐	☐	☐	☐
I mostly eat with friends or family or my partner when I am eating lunch.	☐	☐	☐	☐	☐	☐	☐
I mostly eat with friends or family or my partner when I am eating dinner.	☐	☐	☐	☐	☐	☐	☐
I spend more time eating alone than with friends or family or my partner.	☐	☐	☐	☐	☐	☐	☐
My meal breaks are shorter than 15 minutes.	☐	☐	☐	☐	☐	☐	☐
On a workday I mostly eat alone.	☐	☐	☐	☐	☐	☐	☐
On the weekend I mostly eat alone.	☐	☐	☐	☐	☐	☐	☐
I eat more when I eat with my family or friends or partner.	☐	☐	☐	☐	☐	☐	☐
I eat less when I eat with a social group that I don't know very well.	☐	☐	☐	☐	☐	☐	☐
Dinner is normally my biggest meal of the day.	☐	☐	☐	☐	☐	☐	☐

Section G: Qualities for Social Eating: Cooking, out-of-home eating and snacking habits

G1. Please indicate your rejection or agreement with the following statements.

	Totally disagree	Mostly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Mostly agree	Totally agree
I enjoy participating in several cooking or/and dining events.	☐	☐	☐	☐	☐	☐	☐
I more often cook than ordering ready-made meals or eating out of home.	☐	☐	☐	☐	☐	☐	☐
I have more meals at local gastronomy or fast food chains than at home.	☐	☐	☐	☐	☐	☐	☐
I snack more than eating regular meals.	☐	☐	☐	☐	☐	☐	☐
I snack more when I am alone.	☐	☐	☐	☐	☐	☐	☐

Section H: Socio-demographic Characteristics

H1. Your age

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Section C: Qualities for Healthy Eating: Controlled

C1. Please indicate your rejection or agreement with the following statements.

	Totally disagree	Mostly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Mostly agree	Totally agree
I have a strict control of that what I eat is healthy.	☐	☐	☐	☐	☐	☐	☐
Health concerns play a role in everything I eat.	☐	☐	☐	☐	☐	☐	☐
I always look for a scientific proof to accept whether a food product is healthy.	☐	☐	☐	☐	☐	☐	☐

Section D: Qualities for Healthy Eating: Ordinary

D1. Please indicate your rejection or agreement with the following statements.

	Totally disagree	Mostly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Mostly agree	Totally agree
There are so many rules and guidelines for what you should eat these days that it is impossible to live up to them.	☐	☐	☐	☐	☐	☐	☐
There are too many extreme attitudes regarding healthy eating.	☐	☐	☐	☐	☐	☐	☐
You cannot trust much of the information about what healthy eating is.	☐	☐	☐	☐	☐	☐	☐

Section E: Qualities for Social Eating: Family values

E1. Please indicate your rejection or agreement with the following statements.

	Totally disagree	Mostly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Mostly agree	Totally agree
My childhood memories involve family gatherings with cooking or/and dining events.	☐	☐	☐	☐	☐	☐	☐
When I was a child it was common that I ate my breakfast with my parents together.	☐	☐	☐	☐	☐	☐	☐
When I was a child it was common that I ate my lunch with my parents together.	☐	☐	☐	☐	☐	☐	☐
When I was a child it was common that I ate my dinner with my parents together.	☐	☐	☐	☐	☐	☐	☐

H2. **Your gender**

Female ☐

Male ☐

H3. **Your nationality or country of residence**

H4. **Your educational status**

Primary education – Elementary School ☐

Lower secondary education – Sekundarbildung/Middle/Junior High School ☐

Upper secondary education – Sekundarbildung/High School ☐

Vocational professional education ☐

Bachelor's or equivalent level ☐

Master's or equivalent level ☐

Doctoral or equivalent level ☐

H5. **Your household size**

Please enter the number of individuals in household under 18. ☐☐☐☐☐☐☐☐☐

Please enter the number of individuals in household over 18. ☐☐☐☐☐☐☐☐☐

H6. **Your habitat has**

Less than 10,000 inhabitants (rural) ☐

Between 10,000-100,000 inhabitants (semi-urban) ☐

Between 100,000-1,000,000 inhabitants (urban) ☐

More than 1,000,000 inhabitants (metropolitan) ☐

H7. **You consider your household income**

Low ☐

Medium ☐

High ☐

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H8. The share of food expenses in your total monthly household expenditure is

Up to 10% ☐

Up to 20% ☐

Up to 30% ☐

Up to 40% ☐

Above 40% ☐

H9. How tall are you (in cm or in feet)?

☐☐☐☐☐☐☐☐☐☐☐

H10. How much do you weigh (in kg or in pounds)?

☐☐☐☐☐☐☐☐☐☐☐

H11. Your diet type

Belief-based diet (Buddhist, Hindu, Islamic, Kosher etc.) ☐

Calorie and weight control diet (Intermittent fasting, Weight watchers, Atkins diet, Dukan diet, Crash diet, Detox diet etc.) ☐

Diet followed for medical reasons (Gluten-free diet, diabetic diet, DASH diet, ketogenic diet, liquid diet etc.) ☐

Mediterranean diet ☐

Flexitarian diet (2 to 3 days a week without meat) ☐

Vegetarian diet ☐

Semi-vegetarian diet ☐

Vegan diet ☐

No specific diet ☐

Thank you very much for your participation on this survey!