

Causes of Food Overconsumption

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When people refer to food, overconsumption means overeating, and is the situation in which an individual consumes food above the body's energy requirements in relation to energy expenditure, leading to excess fat in the body. When practiced constantly for long periods of time, and coupled with lack of physical activity, overeating is the principal cause of overweight and obesity in both adults and children. Another aspect of overconsumption is that it is mainly due to an excessive intake of free sugars, fat, animal products and alcohol. The factors that lead to overeating are multiple, and difficult to identify exactly, but they can be grouped in helpful categories: global factors, societal factors, educational factors, and individual factors.

food security

sustainable and healthy food choices/systems

Metabolic Food Waste MFW

nutrition

overconsumption

1. Global Factors Leading to Overconsumption

Among the most important factors that have led to an increase in the amount of food globally is the economic growth experienced in recent decades by economies around the world. Economic growth has been manifested by the increased availability of food resources in the northern hemisphere, due to innovation in agricultural practices that translate into higher quantities of food available for consumption, correlated with a decrease in the price of products previously considered high-end products (meat, dairy). Economic growth has also manifested itself as an intensification of global trade practices, further contributing to increased availability in previously middle- and low-income countries. Economic growth also leads to an increase in per capita income, due to the opening of borders for foreign investors who expand the number of jobs available within the country's borders. Increased availability and income have led over the years to an increase in the amount of food people eat, leading to overconsumption and therefore metabolic food waste ^{[1][2]}. Although contrary, food waste and food insecurity can coexist in the same area, even in the developed economies of the globe. Overconsumption and undernutrition coexist among the population due to multiple factors: on one side, an emergent middle class, population transition towards urbanized areas and the increase in income determine dietary changes characterized by an increase in consumption, while on the other side perpetual inequalities start to manifest from early ages: reduced access or impossibility to access quality food resulting in delayed development, difficult physical or economic access to quality education determining later in life a reduced access to high-paying jobs, thus perpetuating the cycle of insecurity. On the other hand, high access and affordability reflect in all areas of life, therefore continuing the cycle of abundance, and in many cases encouraging overconsumption ^[3].

2. Societal Factors Leading to Overconsumption

The most important driver of overconsumption, when it comes to societal factors, is the current trend of consumerism. Since the beginning of the twentieth century and during the beginning of the mass production of goods, consumerism has spread rapidly due to aggressive marketing campaigns. It is characterized by the purchase of goods and services in an ever-increasing quantity and the rapid withdrawal of goods that are still functional in favour of the “new”. In terms of food purchases and consumption, it encourages a display of wealth through large quantities of food purchased and consumed over energy requirements, promoted by marketing strategies that often end as food waste, either by throwing away leftovers, or by eating over the physical needs ^[4] ^[5].

Another societal factor is the habits of food consumption that are specific to every culture in the world. Some cultures have traditions that encourage the consumption of high-calorie food, especially during the holidays, when full meals and full bellies are signs of joy, happiness and wealth.

Another factor leading to overconsumption is the expansion of fast prepared food in all middle- to high-income countries. The issue with this type of food venue is that most often the foods sold are high in sugar, salt and fat. All of these components are correlated to a high level of satisfaction, leading to repeated consumption and overconsumption. They also lack the micro and macronutrients needed for normal physical function, so in addition to favouring overconsumption and leading to overweight and obesity, if eaten frequently over a long period of time they contribute to a deficiency of nutrients ^[6] ^[7].

Food waste and nutrition are closely linked, as waste, even as MFW determines a reduction in global availability. Food waste not only affects environmental health due to the unsustainable use of resources for food production, but it also affects human health in multiple aspects: reduced availability affects those with reduced means for purchase, and determining undernutrition while wasting food by overconsuming directly affects the health of individuals that regularly consume more than necessary. At the level of society, both of these issues are a matter of sustainability and equity of the food chain ^[8].

3. Individual Factors

Individual factors leading to overconsumption are linked to the eventual consumers, their food choices, and their dietary patterns. This category of factors includes the elements of mental health that can affect food consumption patterns: excessive stress can lead to stress-eating behaviours resulting in overeating; and strong emotional periods that can disturb the feeding pattern can also leading to overconsumption. In the case of stressful and emotional eating, the root cause to be addressed is the mental health of the individual (and the ways to deal with emotionally challenging events), not eating behaviour—it is just an external manifestation of internal turmoil. For this reason, the researchers will not focus on this research on the issue of stressful behaviour and emotional overeating ^[9] ^[10].

Other factors that lead to food waste, overconsumption and subsequently to metabolic food waste, which are directly dependent on the individual [11] and will be further addressed, are considered to be: improper storage conditions and cooking methods in households [12][13]; poor management of food stocks inside households [14]; the level of food security or insecurity experienced by the members of the households [15]; lack of education and knowledge regarding individual energy needs; the desire to buy and eat associated with a lack of awareness when eating food—eating while walking, working, watching TV; lack of control over food choices—people who are dependent on someone else (the elderly, women, children, young adults); personal preferences of food groups; and attitudes towards food waste—negative emotional responses (guilt, sadness etc.) when throwing food away; and not being aware that overconsumption is also food waste [6][12][13][14][15][16][17].

Although food waste continues to be a global issue that greatly affects the sustainability of the food chain and planetary health, it is slightly different from metabolic food waste, which also directly impacts the individual health of people. Food waste can be generated in the households by improper storage conditions, which continue to represent an issue in the developed world. Even with the great development of technology allowing for food storage in controlled environments (chilled storage), improper use of the technology inevitably results in waste. A study from 2020 on German consumers determined that less than 50% of the consumers respect the recommended temperature settings of 4 °C in their refrigerators, leading to 30–50% waste of fresh fruits and vegetables, 15–35% waste of prepared foods, and 4% waste of fresh meat and fish [12]. Furthermore, poor home economics skills and poor management skills for food stocks inside the household contribute to an increase in food waste at household level. A study from 2021 conducted by researchers at Poznań University of Life Sciences on students and lecturers at the University revealed that in younger persons' households, where they are starting life on their own, the level of food waste tends to be higher than in households where older persons are responsible for food commodities management. A greater number of students (almost 90% of respondents), compared with employers (less than 50% of respondents), reported that although they check their home stock before shopping, they buy foods based on a shopping list but they also tend to buy food products that are not on the list under the influence of momentary impulses: cravings, shopping while hungry, discounts etc. [14]. The individual level of food security is also an important determinant of the level of food waste, as shown by a nationwide cross-sectional study in Saudi Arabia. Due to limited agricultural production determined by geography and climate, Saudi Arabia imports around 80% of the food needed, with an expected increase in the trend in the coming years. Even at this level of dependence on external production, a high level of food waste is still registered. From the participants of the study, 13.3% were part of severely food insecure households. For the food insecure household, there was a difference in fresh foods wastage, with higher levels registered in households that benefited from social aids. For the cooked food waste, higher levels were registered in households that were food secure than in those living with food insecurity. The research revealed that income, including social aids, and the presence of elderly members in the household and the number of members of the household were all determinants of both the level of security or insecurity and the level of food waste, cooked or uncooked [15].

Although food waste at the consumers' end represents 61% of the total amount of food waste and loss in North America and Oceania and 52% across Europe, the discussion thus far has omitted to include overconsumption of food products as a wasting behaviour.

4. Lack of Education and Knowledge Regarding Energy Needs

In recent decades, the Western world has been bombarded with information about so-called healthy diets, which promise not only to get rid of overweight individuals, but also to improve their long-term conditions. This fad diet roller coaster has had exactly the opposite results than the desired ones. Knowing that any diet has the reverse, to gain weight and then something extra after it is over, individuals are now in the position to binge diet, following one restrictive diet after another, for fear of not regaining the weight they just lost. Another thing to note is that most of the time, these diets revolve around restriction (Keto diet—restrictive carbohydrates; Paleo diet—dairy, legumes, cereals; low calorie diets; diet elimination food groups; restrictions of food combinations etc.), and the body's long-term depletion of the basic macro- and micro-nutrients needed for optimal functioning. Individuals lack the basic knowledge and understanding of the principal functions of their bodies, as well as the nutritional requirements to ensure optimal intake, and so they choose to follow a diet for a short time without being aware that in fact, a healthy diet is not a diet at all but rather a way of life.

In general, individuals overestimate the amount of protein and fat needed and underestimate the importance of vitamins and minerals found in fruits and vegetables. The result is that they eat far more animal products than the energy requirements and far fewer fresh fruits and vegetables. A study from The Lancet Commission points out that globally, red meat intake is twice the recommended intake, with North America exceeding the recommended intake six times and Europe and Central Asia four times. The same study shows that, compared to the recommended quantity of fruits and vegetables consumed, North America consumes only 60% of each category, and Europe and Central Asia consume about 55% of the recommended consumption of fruits and 70% of the recommended vegetables. Both North America and Europe and Central Asia consume more than the recommended amount of red meat, starchy vegetables, eggs, poultry, and dairy, but less than the recommended fish, vegetables, legumes, whole grains and nuts. These imbalances in the intake are in line with an unhealthy lifestyle, being clear indicators that the population either does not have the knowledge or chooses not to follow the recommendations of the authorities regarding nutrition ^[18].

5. The Impulse to Buy and Eat Related with Lack of Awareness When Eating food—Eating While Walking, Working, Watching TV

Derived from the trend of consumerism, the issue of impulse buying is consistent with behaviours such as overbought and overeating. This behaviour mostly manifests either in response to external factors—promotions, discount prices, product display, store layout, other marketing strategies that encourage consumers to buy more than necessary, or in response to internal (personal) factors—predisposed to be influenced by marketing strategies, inability to withstand momentary urges (determined by seeing, smelling products), lack of preparation before and during shopping (plan meals in advance, determine the amount needed for each food product, check existent stock at home, make a shopping list, include possible “triggers” in the list, follow the list). Closely related to impulsive buying is impulsive eating. While unrelated to mental health issues, as discussed above, impulsive eating

manifests itself as an inability to resist the need to eat, even if you are not hungry at that time. Impulsive eating behaviours are constantly checking the fridge, eating foods just because they are “there” and triggering the need to eat, inability to resist another bite even when you are already full and satisfied, eating because you see someone else eat and are unable to resist the impulse. Impulsive eating should not be confused with compulsive eating, which is represented by repeated episodes of overeating, even to the point where it creates physical discomfort, but also a constant concern for eating and eating. Compulsive eating is considered an eating disorder and should be addressed by a professional, to guide and aid the individual suffering [\[19\]](#)[\[20\]](#).

Closely related to impulsive eating is the lack of awareness and mindfulness directed towards the process of food consumption. From family and even community activity, food has become more and more an individual activity. The time allocated for this activity has also changed. If in the past meals were a reason for the family or community to get together and spend time together, today the meals are often taken alone and in a hurry. The busy schedules and the various other activities that fill people's days make eating in a dedicated time slot almost impossible. Most of the time, the meal is cramped between meetings and deadlines or is consumed in a hurry, while going from one place to another; therefore, mindful eating becomes more and more a treat. Another thing worth mentioning is that even if people take time for a meal modern society likes to eat while watching TV, an activity that exhausts the meal and the attention it deserves. Nutritionists strongly claim that the lack of awareness and mindfulness when eating is one of the main causes of overeating. Not paying attention to the food, and to the signals that the body sends, correlate with eating too fast that inevitably leads to overconsumption. This behaviour, if constantly repeated, will lead to overweight and obesity and related health issues [\[6\]](#)[\[13\]](#)[\[14\]](#)[\[21\]](#)[\[22\]](#)[\[23\]](#).

6. Personal Preferences, Allergies, Intolerance

It is known that everyone is unique, and food preferences are no exception. Each person has personal tastes and tends to like some foods more than others. Others suffer from food allergies and intolerances, making it impossible to eat certain food. This, in turn, makes the effort to create a single diet for all to be futile [\[13\]](#)[\[22\]](#).

Food preferences can lead to overconsumption of certain foods, such as meat, dairy, fats, and carbohydrates, which trigger a higher reward response, to the detriment of other foods such as fruits and vegetables, which are healthier and more beneficial for people but do not trigger the same neural reward. Another aspect to consider is that when people eat foods that they like, they tend to eat more than they need to in order to ensure their sense of satisfaction. As with any other trigger of the reward system, the more and more often they eat what they like, the more they want to eat it, which generally leads to long-term overconsumption, leading to overweight and obesity. Food preferences can be recognized and controlled by changing the pattern of consumption to a healthier one, which includes all food categories in the recommended amount for each individual [\[19\]](#)[\[22\]](#).

People who are affected by allergies and intolerance are guided to replace foods that pose a threat with appropriate foods, in terms of their micro- and macro-nutrient content, to ensure adequate dietary intake. People suffering from allergies and intolerance are not advised to abuse a food group to replace the energy needs corresponding to the food they cannot eat. For example, someone may be allergic to nuts, but this does not mean

that they should consume an excess of fish to ensure the intake of Omega-3 fatty acids, as this element is also found in vegetable oils, flax seeds, chia seeds and leafy vegetables [\[13\]](#)[\[18\]](#)[\[22\]](#).

7. Lack of Control over Food Choices—People Who Are Dependent on Someone Else (Elderly, Children, Young Adults, People with Disabilities)

Overconsumption of food can be an effect of the personal situation, as is the case with children and young adults, the elderly, people with disabilities and some women who have no control over the food they eat.

In the case of children and young adults, the elderly in the care of others and the disabled who need constant care, they are in the situation to eat what the person in charge of their care provides or cooks for them. If the person does not have the knowledge related to the energy needs of a child (in particular) or of the individual in general, it can easily lead to all forms of malnutrition, including over-nutrition. This is the case for many overweight and obese children who are fed an inadequate diet or are asked by their supervisor to finish everything on the plate, even if it is too much for them. In adulthood, this behaviour of finishing food on the plate will persist, even without supervision, and will eventually be practiced with their own children and creating a continuous chain of over-nutrition. In the case of the elderly, they may be overfed due to concerns about their general health. The person in care of the elderly may not realize that the energy requirements of the elderly are lower than those of other adults, due to changes in the body but also to decreased physical activity. Therefore, the elderly may be asked to eat more than they need, with good intentions—a concern for their health—that leads to overweight and obesity, which are even more problematic for geriatrics [\[24\]](#)[\[25\]](#)[\[26\]](#).

8. Attitudes towards Food Waste

The way individuals relate to food waste differs greatly, from a total disregard for the negative aspects of food waste to an almost compulsive fear of it. It should also be borne in mind that overconsumption as food waste is a new concept and still unknown to consumers. Until recently, the only problems with overconsumption were the health risks of being overweight and obese. Moral attitudes toward food waste, such as guilt or remorse for throwing away waste, often lead to overconsumption. Individuals do not yet realize that eating over the required amount is a waste of resources, which has a negative impact on personal health. There are many ways to deal with leftovers—from better meal or portion planning to reusing leftovers as disgusting. The same flawed belief system applies to foods marketed as healthy: the consumer strongly believes that healthy foods cannot be tasty, although there are not scientific studies to prove that indeed healthy food cannot be tasty [\[27\]](#)[\[28\]](#).

In view of all the above reasons, the researchers believe that preventive actions should be strongly consumer oriented. The researchers want to identify at least one possible method of preventing MFW that can be applied globally, regardless of geographical location, food system structure or diet choice. Focusing on consumer

behaviour, the researchers assume that the greatest impact on reducing the appearance of the world MFW will be the education of consumers around the world.

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