Ultra-Processed Foods through an Intersectional Lens

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We all agree that food, clothing and shelter are basic necessities for human survival. One factor that sustained our survival was the evolution of our interaction with food, from eating the food as is, in its most natural form, to engaging in some type of food processing. Food processing, which included boiling, baking and fermentation, was necessary to survive long migrations and thus the expansion of the human population, (Park). Food processing began at least 400,000 years ago, with our ancestors using fire to cook meat until the advent of agriculture 10,000 - 15,000 years ago. In contemporary times, our food processing abilities continue to evolve. Now food has advanced to be much more than their nutrients and are more focused on satisfying customers' sensory appeal. Priscila Machado, a public health nutritionist at Deakin University in Geelong Australia, acknowledges that cosmetic additives such as colors, flavors, thickeners, emulsifiers, and gelling agents are used to improve the sensory properties of food (Park). Due to these severe alterations, after the addition of all these cosmetic additives, these processed foods are labeled as "Ultra-processed foods". According to the NOVA system ultra-processed foods are industrial formulations made entirely or mostly from substances extracted from foods (Monteiro).

While ultra-processed foods were developed to satisfy customers' sensory appeal, and not just provide nutrients, it seems to be a double edged sword. Through my research, I have encountered several perspectives that empathize with the ongoing consumption of ultra-processed foods by marginalized populations and perspectives that are strongly

against ultra-processed foods. For this reason, I will be investigating the motivations behind why underprivileged persons and families with working parents consume ultra-processed foods, and why animal rights activists are against its consumption. To further demonstrate the implications of this ongoing debate on ultra-processed foods, I will be highlighting the response of those stakeholders that ultimately have the final say in the quantity of ultra-processed foods being produced: manufacturers and governments. While this investigation does not draw a final conclusion to the ongoing debate on ultra-processed foods, it does allow readers to develop a more comprehensive understanding of the factors that drive the push and pull of the consumption of ultra-processed foods. This can possibly lead to readers being more conscious of the different roles ultra-processed foods play in the lives of different groups.

Ultra-processed foods

Before taking a deep dive into the analysis of ultra-processed foods, it is important to fully conceptualize foods that are considered, "ultra-processed". Sara Burke, associate professor of neurobiology and cognitive aging from the University of Florida, gave us a simple way to categorize ultra-processed foods. She says with ultra-processed foods, "You are not likely to find the ingredients that make up most of these foods in your home kitchen" (Burke). However, Harvard Health Publishing, gave us a more formal definition that will be helpful in analyzing the impact of ultra-processed foods later on in this inquiry essay. Kathy McManus, teaching affiliate of Harvard Medical School, defines ultra-processed foods as foods that most likely have many added ingredients such as

sugar, salt, fat, and artificial colors or preservatives. Ultra-processed foods are made mostly from substances extracted from foods, such as fats, starches, added sugars, and hydrogenated fats. They may also contain additives like artificial colors and flavors or stabilizers. Examples of these foods are frozen meals, soft drinks, hot dogs, cold cuts, fast food, packaged cookies, cakes, and salty snacks (McManus). While McManus makes us aware of the additives in ultra-processed foods, research conducted by Terra Fazzino, lead researcher at the University of Kansas, forces us to understand their effects on our health.

Fazzina suggests that these additives in ultra-processed foods make them hyperpalatable. She used nutrition software to analyze more than 7,000 food items in the U.S. Department of Agriculture's food and nutrient database and noted that foods that combine sodium and sugar (such as pretzels), combine sugar and fat (ice cream and cake) or combine fat and sodium (bacon and hotdogs) were more likely to be hyperpalatable (Fazzino). Research done by the University of Missouri-Kansas City contributes to this finding. Additionally researcher Kalon Eways' showed that viewing pictures of hyperpalatable foods stimulates the reward circuitry of the brain (Kalon). When we examine these research findings in tandem it suggests that ultra-processed foods are hyperpalatable and hence stimulates the reward circuitry which may lead to addiction.

The relationship between ultra processed foods and cancer

It's unsettling to conceptualize that foods that taste so good often come with a detrimental side effect: cancer. A study conducted by the Imperial's School of Public

Health, in collaboration with researchers from the International Agency for Research on Cancer (IARC), the University of Sao Paulo, and NOVA University Lisbon, found that an increase in the intake of ultra processed foods is correlated to an increase in cancer (Chang). The researchers used the UK Biobank to monitor 200,000 middle aged participants' health over 10 years. This extensive research was done to determine the risk of developing and dying from 34 types of cancer. For every 10 per cent increase in ultra-processed food in a person's diet, there was an increased incidence of 2 percent for cancer overall and a 19 per cent increase for ovarian cancer specifically. Each 10 per cent increase in ultra-processed food consumption was correlated with increased mortality for cancer overall by 6 per cent, alongside a 16 per cent increase for breast cancer and a 30 per cent increase for ovarian cancer. Overall, the study found that higher consumption of ultra-processed foods was associated with a greater risk of developing cancer, specifically with ovarian and brain cancers. It was also associated with an increased risk of dying from cancer, most notably with ovarian and breast cancers (Chang). Another senior researcher on this study, Dr Eszter Vamos From the School of Public Health, also gave insight on the importance of this data stating "This study adds to the growing evidence that ultra-processed foods are likely to negatively impact our health including our risk for cancer." The research conducted by Chang and Vamos is also supported by Thibault Fiolet, from the Sorbonne Paris Cité Epidemiology and Statistics Research Center. Filolet cited that a 10% increase in the proportion of ultra-processed foods in the diet was associated with a significant increase of greater than 10% in risks of overall and breast cancer (Fiolet). However, Fiolet cautioned that further studies are needed to better understand the relative effect of the various dimensions of processing (nutritional composition, food

additives, contact materials, and neoformed contaminants) in these associations. Regardless of this caution, Chang, Vamos and Fiolet findings add weight to the argument that there is a strong correlation between the consumption of ultra-processed foods and the increased risk of cancer.

However, cancer is not the only side effect heavy ultra-processed consumers can expect. Researchers from Northeastern university and Tufts School of Medicine have concluded that persons that eat more ultra-processed foods show a positive risk of metabolic syndrome, diabetes, higher blood pressure, blood insulin and lower HDL cholesterol levels (Menichetti).

The research conducted by Menichetti, Chang and Fiolet paints a bad picture of ultra-processed foods, in terms of being correlated to severe health complications. However, ultra-processed foods still make up a large percentage of American diets. This is supported by a study published in Frontiers in Nutrition, that stated more than 60 percent of caloric intake in the U.S. comes from ultra-processed food (Gupta). Overtime, this percentage is increasing. Research from the New York University noted that ultra-processed food consumption grew from 53.5 percent of calories in (2001-2002) to 57 percent at the end (2017-2018) (Parekh). Parekh also noted that nearly all demographics saw this increase in consumption of ultra-processed foods.

However, for the purpose of this inquiry essay we will explore two demographics: underprivileged persons and working parents. To be more specific, we will dissect the

unique experiences of underprivileged persons and health conscious families with two working parents, to further understand the reason they continue to consume ultra-processed foods despite their seemingly severe health complications.

Underprivileged persons

Research suggests that underprivileged families experience unique constraints that drive them to consume ultra-processed foods. While there are a variety of constraints, three comprehensive ones I believe are worth tackling to get a better grasp of an underprivileged person's situation are: financial poverty, time poverty and physical constraints. Approximately 12% of American families live below the poverty line according to the American Psychological Institute ("Exploring the mental health effects of poverty, hunger, and homelessness on children and teens"). When we consider the vast number of Americans living in poverty and the meta-analysis conducted by Mayoree Rao, a junior research fellow in the Department of Epidemiology at Harvard School of Public Health, that concluded after examining 27 studies across 10 countries that healthier foods were on average $1.50 more than their unhealthier version, we can see how underprivileged families are negatively affected about the higher cost of healthy goods (Rao). Researcher, Mayoree Rao, himself acknowledges that despite awareness of the consequences of ultra processed foods, because of the high price of healthier foods, underprivileged families opt for ultra-processed foods because they are affordable to their lifestyles (Rao).

Another dimension on why underprivileged families tend to consume ultra-processed foods regardless of their correlated negative health consequences is the physical inaccessibility of healthy foods because of food deserts. Food deserts are communities that lack access to healthy and nutritious foods. The United States Department of Agriculture estimates that about 19 million residents, 6.1% of the population, live in low-income, low access areas and have trouble getting to a grocery store (USDA). Even at the National level, 21 976 US zip codes with 259 182 full-service restaurants and 69 219 fast-food restaurants, of which are also considered ultra-processed foods, found that these establishments were more highly concentrated in low- and middle-income neighborhoods than in high-income neighborhoods (Hilmer). This demonstrates that healthy foods are not only physically inaccessible to underprivileged families, but also this gap is being filled by its unhealthy alternative: ultra-processed foods and there's a historic reason for this.

Food deserts can be explained historically from a system of "Food Apartheid". This is a system of segregation that divides those with access to an abundance of nutritious food and those who have been denied that access due to systemic injustice (Khan). During the Great Depression, certain geographic regions were marked as "red" zones where they were left out of capital investment from lending institutions. It is no surprise that these areas were concentrated with Black and latinx communities. In an interview with Aja Lans conducted by Khan, a postdoctoral fellow at Harvard, she stated, "The highways intentionally wouldn't have exits that were convenient to places Black folks live". In the article produced from Khan, Lans emphasized that this effectively limited the economic

opportunities Black persons had access to and handicapped their resources, including their access to reliable transportation. She argues that what worsens this issue is the intergenerationality aspect of it, as children in these communities are more vulnerable to developing lifestyle diseases. Lans forces us to examine underprivileged families' consumption of ultra processed foods along the axis, unreliable transportation systems, inaccessible access to healthy foods and other social issues. Lans and Khan research suggest that low income individuals are particularly vulnerable to consuming ultra processed foods because of the compounding issue of lack of accessibility they experience. This is supported by research conducted by Cindy Leung from the Department of Nutritional Sciences, School of Public Health, University of Michigan that concluded that more severe food insecurity was associated with higher intakes of ultra-processed foods (Leung).

Health conscious families with two working parents

Financial and physical inaccessibility to healthy foods are not the only barriers to preventing families from consuming healthy foods. Time poverty plays a role in the consumption of ultra-processed foods. A study conducted by Ingrid Djupegot from the Department of Public Health, Sport and Nutrition, University of Agder showed that time scarcity was associated with both consumption of ultra-processed dinner products, snacks & soft drinks as well as fast foods away from home after adjustment for sociodemographic correlates and weight status (Djupegot). This problem of time scarcity is particularly persistent among parents with children under the age of 15. They have up

to 15 hours less time than single persons living alone and this issue is only exacerbated for low-income mothers that do not have the financial resources to access support structures like paid child care (Bishop). “Time poverty overwhelmingly affects caregivers, but it also disproportionately affects the poor,” says Aleksander Tomic, the associate dean for Strategy, Innovation and Technology at the department of economics, Boston College. “For families that cannot pay for caretakers for children, the elderly or ill in their family, childcare and various appointments can claim an inordinate amount of time. Caregiving tasks are almost always done by women, even if they live with a partner.” Tomic allows us to understand that low income neighborhoods are not the only ones vulnerable to this increasing intake of ultra processed foods, families with two working parents also face similar risks.

The article "In defense of ultra processed foods” by Sylvain Charlebois Director, Agri-Food Analytics Lab, Professor in Food Distribution and Policy, Dalhousie University and Janet Music, Research Associate at Agri-Food Analytics Lab from the School of Information Management, Dalhousie University, offers another perspective as to why families are prone to eating ultra processed foods by explaining the historical context of why ultra processed foods are increasingly being eaten (Sylvain). They argue that it is due to the rise of women entering the workforce which translated to a decrease in the time available to prepare home cooked meals. This is the story the statistics show as well, as 71.2% of mothers are employed, and are responsible for 5 hours and 42 minutes a day on unpaid household and care work, while men spend an average of 3 hours and 36 minutes (Hess).

This problem is only intensified for low-income families with two working parents that are more time poor.

Underprivileged families and families with two working parents experience severe socio-economic, political and environmental factors that push them towards ultra processed foods. Dan Glickman, former US secretary of Agriculture, articulates the problem that these families face. In a video conversation hosted by “Conversations on Health Care”, he states that "There are certainly economic disincentives for them (underprivileged families) to be able to purchase, in many cases, fresh produce in the same capacities for the higher-income people”(Flinter and Mark Masselli).

Underprivileged families do not solely experience economic disincentives but also health disincentives. According to the National Cancer Institute, persistent poverty was associated with markedly increased risks of dying from several specific cancers, including lung, colorectal, stomach, and liver cancers (“Persistent Poverty’s Impact on Cancer Death”).While the National Cancer Institute does not make an explicit linkage between the role of ultra-processed foods in this increased incidence of cancer, the research cited earlier by Chang, Vamous and Fiolet suggests that the consumption of ultra-processed foods is correlated to cancer. Hence, we begin to understand how the financial poverty of underprivileged persons pushes them towards ultra-processed foods and affects their health.

Manufacturers of Ultra- Processed Foods

Underprivileged families are not the only ones that stand to be negatively impacted by the consumption of ultra-processed foods, which is why many people are turning to plant-based ultra-processed foods as a solution. Research led by Abi Sritharan, lead scientist of the Kerry Group, found that across 1500 individuals in the US, UK, Australia and Brazil that 60 percent of UK consumers started eating plant-based products because they are considered 'healthier', whilst 63 percent of US consumers started eating plant-based products because they believe plant-based is 'better for the planet' (Sritharan, 2022). In Australia, 51 percent of consumers buy plant-based due to a better environmental impact, and in Brazil, 67 percent of consumers buy plant-based because they are committed to improving their own (or their family's) overall health (Sritharan).

Animal Cruelty

This environmental degradation and animal cruelty is highlighted in the documentary, "Pig Business: the true cost of cheap food" by Tracy Somerset, Duchess of Beaufort and environmentalist activist, which emphasizes why consumers have demanded an increase for sustainable ethically sourced food. Ultra-processed foods like bacon are fueled from the industrialization of animal factories that threaten animal welfare rights. In 2020, 99% of animals were raised on factory farms which means there are approximately 1.6 billion animals confined within 25,000 factory farms across America and are subjected to inhumane treatment ("Food Justice FACTORY FARMING: WHAT IT IS AND WHY IT'S A PROBLEM".) This is a big issue that affects animals like cows, chicken and pigs. The

documentary, “Pig Business: the true cost of cheap food” by Tracy Somerset, explains that disposal of pig waste is another big concern as 10 million pigs create more waste in a day than 100 million human beings. The documentary goes on to explain (and show) the heinous living conditions of the pigs, where there is not enough space to turn around or root. Rooting is a natural behavior for pigs where they push their snouts into the ground and is the equivalent of a cat grooming themselves. Their living conditions are riddled with diseases so the pigs are pumped with antibodies to prevent their premature death. This overdose on antibodies has serious health implications for both pigs and those who consume them: human beings. An implication we will explore further later on.

However, as the documentary explores, consumption of processed pork is not the only health implication humans are exposed to. The documentary also interviewed many persons that lived near these farm factories and they reported of their inability to breathe, increase in allergies and cease and desist letters to stop consuming their water supply. These personal interviews are supplemented by data from Nina Domingo from the Department of Bioproducts and Biosystems Engineering, University of Minnesota. She concluded that agricultural production in the United States results in 17,900 annual air quality–related deaths, 15,900 of which are from food production. Of those, 80% are attributable to animal-based foods, both directly from animal production and indirectly from growing animal feed. Taken together, these two data sources emphasize the drastic impact animal farming has on human health and hence provides context into why more consumers are demanding ethical options..

Manufacturers have noted this shift in consumer preference and responded accordingly with plant based alternatives. This is demonstrated clearly in the research conducted by Armand Cardello, from A.V. Cardello Consulting and Editing Services, Framingham, noted an increase in consumer preference for plant based products (Aramand) and the fact that companies invested 1.19 billion dollars in producing plant based products in 2022 (Good Food Institute). Additionally, the global plant-based meat market size was valued at USD 4.40 billion in 2022 and is expected to grow at a compound annual growth rate (CAGR) of 24.9% from 2023 to 2030 (Grand View Research). A strong implication of the aforementioned research is that manufacturers are committed to appeasing consumer preferences.

However, the efforts of manufacturers are challenged in the article, 'Don't fall for the halo effect of plant-based fast food', where Cara Rosenbloom, a registered dietitian, attacks the marketed alternative of ultra-processed meat based foods. Health conscious consumers prefer these plant based alternatives because of their supposed health benefits, as evidenced by the research conducted by the Kerry Group (Sritharan). However, Cara argues that they are just as nutritionally lacking as its meat based counterparts. Her stance is clear, "whole foods should be preferred to ultra processed foods, whether it's plant based or not" (Rosenbloom). Her challenge is supported by nutritionist, Priscila Machado, a public health nutritionist at Deakin University in Geelong, Australia. She insists that even when nutrients are added back in, like cereals fortified with iron or fiber, food might not be as healthy as it seems. Machado maintains that added nutrients don't

work as well as those found in whole foods when interviewed for the BBC article “How Processed Foods Became so Unhealthy” by Park Williams (Williams).

Manufacturers have been using other schemes to improve their perception of health. For example, in the documentary, “Pig Business: the true cost of cheap food” by Tracy Somerset, the researchers explain how companies grow and slaughter their livestock in other countries then process it in the UK to be marked as a “UK Item”. The UK has the strictest animal welfare standards in the world so when consumers see that label, they assume the animal was raised, slaughtered and processed in an ethical manner, according to UK standards, which is not the case. Overall, Cara, Tracey and Machado work together to uncover the loop holes manufacturers take to appeal to consumers’ preferences for healthier foods.

The Government

In light of the attempts of manufacturers to portray ultra-processed foods healthier than they seem, the government has the political act of balancing the interest of their average voters and manufacturers. Some manufacturers have a vested interest in encouraging the government to enact strategies that favor the farm industry such as access to loans. This is seen clearly in the documentary, "Pig Business: the true cost of cheap food” by Tracy Somerset, where Dennis Treacy, Vice President of Environmental and Corporate Affairs at Smithfield Foods, was asked about his company’s large political contribution to government officials. He replied, ‘political contribution is not common… it is the way of

life, it is part of the American life, you make sure to know your representative, make sure they know your family, your business so they are aware of how their decisions affect your life" (qtd. in "Pig Business: the true cost of cheap food"). While this was a statement made in 2009 when the documentary was released, there are other indicators that the government is favoring the interest of manufacturers. For example, Smithfield Foods was granted a 60 million dollar USD loan from the International Finance Corporation, an arm of the World Bank Group in 2015, in light of allegations of animal abuse (Kirkham). This is just one example of government funding being allocated to farm factories, sometimes without even proper transparency protocols. For instance in 2022 the Farm Service Agency was sued for withholding and improperly redacting records regarding the funding of factory farms by the Public Justice Foundation ("Demanding Transparency Regarding Government Funding of Factory Farms").

Nevertheless, some governments are pushing back and choosing to reject the sponsorship of ultra-processed food manufacturers. Countries such as Brazil, France and Canada are updating their national dietary guidelines with endorsements to reduce intake of ultra-processed foods. Brazil has also banned the marketing of ultra-processed foods in schools in 2018 (Khafile) and Trinidad and Tobago has banned the sale of soft drinks in schools in 2017 (Lewis). Both countries enacted these policies in an effort to combat the rising rates of obesity and diet-related chronic diseases. Narrowing in on Brazil, author Khalife explained that this law was prompted because in 2015, diet-related chronic diseases accounted for 71 percent of total Brazilian deaths. This also prompted Brazil to propose 84 bills to address the consumption of ultra-processed foods between

2016-2019. Despite these aspirations to reduce ultra-processed foods, research conducted by Aline Brandão Mariath, from the Department of Nutrition, School of Public Health, University of São Paulo in 2021, suggested that there was likely no impact of these proposed bills because none were implemented (Mariath). Still, this reflects a growing concern of policy makers to protect their constituents against the suggested severe negative health implications that are associated with ultra-processed foods.

In conclusion, the perception of ultra processed foods though negative, especially with the compelling statistics on the increased incidence of cancer, continue to be consumed. Two key stakeholders that contribute to their consumption, underprivileged families and working parents, were assessed historically, economically and socially. This was done to deepen our understanding of their motivations behind eating ultra processed foods. On the other hand, critics of ultra processed foods, animal rights activists and nutritionists were analyzed through the same dimensions of history, socialization and economic gain. We saw a deep divide in their interests that can only be quelled by the intervention of Government and Manufacturers. That is why the relationship between these two proponents of the ultra processed was examined. While this investigation did not conclude on final recommendations, it assisted in raising awareness of the different interests of various stakeholders. Through this process, it is my hope that readers begin to unravel the complexities of ultra-processed consumption.

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