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The Benefits of Following a Plant-based Diet Over an Omnivore Diet

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Abstract

Plant-based diets refer to dietary patterns that emphasize the consumption of whole-plant food while limiting or eliminating animal products. These diets can include many variations such as vegan or vegetarian diets. In this paper, I argue that shifting to a plant-based diet is more beneficial than following an omnivore diet. I support my position with three arguments. First, I argue that plant-based diets are environmentally friendly. Second, I argue that these dietary habits are a proposed solution to combat the vulnerability to food shortage. Third, I argue that following plant-based diets can decrease the risk of developing diseases that are common in the 21st century. I also consider the alternative claims about these diets. The opposing positions argue that plant-based diets are nutrient insufficient, costly, and self-defeating. I conclude my paper by suggesting the importance of exploring this topic further to raise awareness about implementing such diets into society's culture.

Keywords: Omnivorous, climate change, water footprint, biodiversity, plant-based diets, least harm principle

The Benefits of Following a Plant-Based Diet Over an Omnivore Diet

In this paper, I argue that following a plant-based diet is more beneficial than following an omnivore diet. The World Health Organization (WHO, 2021) defines plant-based diets as "… diets that constitute a diverse range of dietary patterns that emphasize foods derived from plant sources coupled with lower consumption or exclusion of animal products." Various dietary habits branch from plant-based diets such as vegetarian and vegan. For example, the vegetarian diet eliminates meat, poultry, and fish but allows the consumption of their by-products like dairy products and eggs. The vegan diet takes a step further and excludes all animal products. Nevertheless, in this paper, vegetarian and vegan diets will be used synonymously to refer to plant-based diets. On the other hand, an omnivore diet comprises food from both animal and plant sources. Despite the positive influence offered by plant-based diets, some argue that following such diets has many limitations that hamper them from being adopted.

I support my position on the benefits of following a plant-based diet with the following three arguments. First, following a plant-based diet helps the environment in terms of sustainability. According to Chai et al. (2019), livestock production contributes to 30% higher greenhouse gas emissions than those released by staple plant food such as maize. Second, plant-based diets promote global food security. Shepon et al. (2018) claim that shifting to plant-based diets can increase food availability, as food losses will decline by up to 20%. Finally, many health issues are mitigated by adopting a plant-based diet. For instance, following a vegan dietary pattern enhances sugar blood levels in type-2 diabetes patients, and in turn, the diet reduces the risk factors of developing cardiovascular disease (Kahleova et al., 2018).

I also consider three alternatives to my position. First, opponents view plant-based diets to be restrictive and imbalanced. Some researchers believe that plant-based diet adopters experience deficiencies in their nutrient levels, which may adversely impact their mental health status (Burkert et. al, 2014). To refute this position, I discuss a study by Beezhold et al.

(2010), demonstrating that despite the low intake of vegetarians to omega-3 fatty acids, their mood is minimally affected. Second, people may argue that the affordability of meat-based meals makes shifting to plant-based diets difficult (Parlasca & Qaim, 2022). This argument is refuted by Dorgbetor et al.'s (2022) study indicating how vegan dietary patterns are less costly than the omnivorous diet. Third, others claim that plant-based diets are ethically self-defeating. According to many opponents of veganism (e.g., Davis, 2002), the vegan diet kills wild animals in the crop production process. While this position has considerable support, I show that the harm exposed by animals in the production of a vegan diet is considerably less than that of ruminant production (Matheny, 2003).

This paper is important as it addresses multiple questions that may facilitate our perception of the plant-based diets implications for us and our surroundings. These questions include "What makes people shift to plant-based diets," "How can omnivorous diet exacerbate the climate change dilemma," and "What are the effects of adopting plant-based diets on people's health," Through addressing these questions, the goal of this paper is to educate the new generation of the long-term outcomes associated with plant-based consumption on our lives.

The Benefits of Following a Plant-based Diet

Despite the controversy surrounding plant-based diets, empirical evidence indicates that shifting to these diets has an array of benefits that are reflected in people's quality of life. Some of the benefits include the diets' potency to improve the environmental factors in our ecosystem in terms of gas emissions, land use, and biodiversity protection. Plant-based diets are also owed to their contribution to less food wastage and their enhancement of food security. Another benefit of adopting plant-based diets is the improvement of people's overall health levels, particularly in type-2 diabetes and cardiovascular patients.

Promotes Environment Sustainability

The consumption of plant-based diets leads to a sustainable environment. In the context of diets, sustainability refers to diets that highly contribute to healthy lives for the

current and future generations while minimally impacting the environment (Food and Agriculture Organization [FAO], 2010). A relevant aspect that is considered when determining the sustainability of dietary patterns is the intensity of greenhouse gas emissions in the environment. Generally, food systems are key emitters of three primary greenhouse gas emissions: carbon dioxide, methane, and nitrous oxide. These emissions are detrimental to the Earth's atmosphere and may increase global warming. Nevertheless, plant-based diets minimize the emissions of these gases into the environment. For instance, a systematic study conducted by Chai et al. (2019) suggests that the production of plant-based diets, such as vegetarian, generates 23% fewer greenhouse gas emissions than red meat production. The study further explains that beef production is responsible for 44 % of the total methane emissions globally. Similar to previous studies, the results of a study by Poore and Nemecek (2018) show that livestock production of cattle and sheep contributes to 80% of agricultural carbon footprints. By contrast, plant-based diets emit a significantly lower carbon footprint as they require fewer resources.

In addition to greenhouse gas emissions decrement, shifting toward these diets combats the land-use crisis. According to Reynolds et al. (2014), the production of soybeans, a vegetarian protein substitute for meat, requires one-sixth hectare (ha) of the cropland used in meat and dairy production. Monitoring the amount of land used for agriculture is important because of its potential to exacerbate environmental degradation (Mottet et al., 2017). That is, land use is accompanied by the conversion of wild spaces to farmland, which is a leading factor in deforestation. Additionally, in agreement with Reynolds et al.'s study, Poore and Nemecek (2018) report that global farmland used for grazing animals can be lessened by up to 75% if everyone follows a vegan diet. The authors go on and indicate the degree to which meat production degrades larger amounts of resources than the plantation of staple food. As reported by Poore and Nemecek, each kilogram of beef requires 163 times more land and 11 times more CO_2 than a kilogram of rice. Therefore, the adoption of plant-based diets reduces the agricultural expansion of grazing land used for animal pasturing.

Shifting to plant-based diets can further conserve biodiversity and hinder habitat destruction. Crippa et al. (2021) claim that animal farming is an identified threat to the extension of 24,000 out of the 28,000 species documented in the world. The rapid expansion of livestock production provokes the domination of a small number of farmed animal species, such as cows and pigs, in the global biomass. For example, farmed chicken accounts for 57% of all bird species by mass, compared to 29% for wild birds ("Intergovernmental Science-Policy" [IPBES], 2019). Accordingly, if plant-based diets are adopted, they can help minimize the pressure on forests, natural habitats, and other animal species by decreasing the demand for animal products.

Enhances Food Security

Plant-based diets have a significant impact on reducing water consumption globally. These diets can contribute to sustainable food systems by conserving the freshwater used in the irrigation process of meat production. In a study performed by the Water Footprint Network, Chapagain and Orr (2009) show that a shift towards a plant-based diet can reduce the water footprint of the average European consumer by up to 35%. The reductions in water consumption are owed to the fact that plant-based food production requires less water than animal-based food. The researchers further elaborate that plant-based diets are less processed and packaged. These attributes make plant-based diets important contributors to lower water footprints. Another study by Mekonnen and Gerbens-Leene (2022) demonstrates that producing one kilogram of beef requires 15,000 liters of water while only 1,500 liters of water is required for one kilogram of wheat production. This notable difference in water usage between animal-based and plant-based diets highlights the potential impact that a shift in dietary habits can have on water conservation efforts. Furthermore, the United Nations Environment Programme (UNEP, 2012) identifies plant-based diets as a key strategy for sustainable food systems and water conservation. In a report on the link between food, water, and energy, the UNEP suggests that a reduction in the consumption of animal products and a leaning towards more plant-variant food options is necessary to ensure food security.

Plant-based diets can also minimize food waste and promote food system recyclability. According to the Food and Agriculture Organization of the United Nations (FAO, 2006), approximately one-third of all food produced globally is lost or wasted. This loss amounts to 1.3B tons of food wasted each year. However, by shifting to plant-based diets, the amount of food waste generated will be lowered, leading to a more sustainable and efficient food system. Unlike animal products, plant-based foods require fewer resources and inputs such as water, land, and energy to be produced, making them less likely to be wasted (Sabate & Soret, 2014). For example, it takes significantly less water to produce a pound of lentils than a pound of beef, with lentils requiring only 43 gallons of water per pound compared to 1,800 gallons for beef. In addition, plant-based foods are recyclable (Sarkar et al., 2022). That is, plant food wastes can be composted and used to fertilize the soil, creating new resources to grow more food and a sustainable food system.

Improves Human Health

Plant-based diets can fight against cancer. In a study published in the Journal of the American Association for Cancer Research, Bartley et al. (2013) claim that plant-based dieters have a lower likelihood of developing colorectal cancer compared to meat eaters. A major reason that could lead to such a result may be explained by these diets' positive correlation with reduced chronic inflammation. Inflammation is a long-term healing process that can result in tissue damage and eventually lead to the development of cancer. In addition, Plant foods are rich dietary sources of a number of bioactive compounds (Molina-Montes et al., 2020). These compounds include high fiber content and antioxidant components that are known for their anti-cancer and anti-inflammatory effects. The bioactive compounds present in plant-based diets can also prevent cancer proliferation as they play an important role in treating cancerous cells.

Another important merit that plant-based diets have over the omnivore diet is their ability to reduce the risk of developing type-2 diabetes. Evidence from a study by Micha et al. (2010) highlights that people following plant-based diets have a lower tendency to

develop type-2 diabetes compared to other dietary patterns. This relation can be explained by the diets' low correlation with high blood insulin levels. To demonstrate, the frequent rushes of insulin in the blood pose a threat to human health, as they are a direct cause of insulin resistance and a precursor of diabetes. Similarly, McMacken and Shah (2017) claim that plant-based diets improve glycemic control and regulate insulin levels in the blood. As a result, they reduce the frequency of medication used by individuals with type-2 diabetes. Adding to this argument, these diets promote weight loss and lower the risk of insulin resistance (Ahmad, 2022). Plant-based dieters have one of the lowest BMI of other dietary groups since plants are generally considered low in their caloric density and fat content. As such, consuming high volumes of plant-based food will not lead to weight gain, making plant-based dieters at a lower likelihood of developing type-2 diabetes.

Following a plant-based diet can also lower the risk of developing cardiovascular disease. A study by Kahleova et al. (2018) highlights that plant-based diets can reduce the possibility of cardiovascular and stroke. More specifically, the researchers suggest that the vegetarian diet is consistently associated with a positive impact on the cardiovascular system. These effects include lowering systolic and diastolic blood pressure and LDL cholesterol. In fact, the consumption of plant-based diets is suggested to favorably improve the status of cardiovascular patients (Quek et al., 2021). The authors demonstrate that plant food has notable effects on lowering BMI index, regulating glycemic index, and reducing inflammatory responses. Consequently, the diet can act as a treatment for minimizing the complications of the disease to its patients. Additionally, a study conducted by Sabbari et al. (2022) has shown that the consumption of red meat increases the likelihood of developing coronary heart disease in both obese and non-obese patients by up to 29%. The authors conclude that red meat has been found to increase the risk of ischemic heart disease.

Potential Arguments Against Following a Plant-based Diet

Some critics believe that plant-based diets are associated with limited positive outcomes and multiple constraints. For example, they insist that plant-based diets can lead to

nutrient inadequacy in their adopters' blood levels. Others argue that replacing meat with plants and meat-analogous products is not a convenient option for various socioeconomic levels. In addition, from the diet's ethical position, many view plant-based diets to be self-defeating because they are correlated with the death of many ruminant animals.

Plant-based Diets as Unbalanced Lifestyle

Supporters of meat consumption argue that plant-based diets are imbalanced and unsustainable in the long term. Many experts claim that a strict plant-based diet, such as vegan, lacks many essential nutrients that are exclusively found in a meat-based diet. Clarys et al. (2014) conducted a cross-sectional study that aimed to compare the nutrient intakes of various dietary patterns, including plant-based diets, omnivorous diets, and semi-vegetarian diets. The authors proposed that plant-based dieters are more likely to experience protein deficiency than other dietary pattern consumers.

Defenders of omnivorous diets also argue that such diets lack vitamin B12, a crucial vitamin for the appropriate functioning of the cardiovascular and nervous systems. A study published by Shipton and Thachil (2015) found that vegans with B12 deficiency made up 92% of 174 studied participants, whereas only 5% of those who consumed meat had a deficiency in their B12 levels. Unlike other types of vitamin B, the study indicated that B12 is absent in almost any plant food but is adequate in many meat sources. Thus, it is difficult for people following plant-based diets to get their vitamin B12 recommended intake. Besides the nutrient deficiency, empirical evidence suggests that individuals who avoid meat consumption have a higher risk of developing mental health issues (Dobersek et al., 2021). This result lies in the fact that the exclusion of any food group, such as animal protein, is associated with depressive symptoms.

Although some researchers have linked plant-based diets with potential nutrient deficiency, Mariotti and Gardner (2019) show that plant-based diets can provide adequate amounts of protein to their consumers. The authors explain that plant-based protein sources including legumes, whole grains, and nuts contain all the essential 20 amino acids. However,

the amino acids are distributed less optimally in plant food than in animal food. Vegetarians and vegans may, as a result, consume slightly higher amounts of protein to compensate for the lower protein quality. In other words, meeting the protein requirements of a plant-based dietary pattern is possible if the diet is well-planned and diversified with protein-rich sources. Adding to this argument, a cross-sectional study conducted by Beezhold et al. (2010) examined the impact of the vegan diet in regard to the mood of its eaters. Despite the fact that certain fatty acids, like omega 6, are exclusively present in omnivorous diets and are essential for regulating mood. The authors emphasized that there was no indication that the absence of animal meat in vegetarians' diets has any influence on their moods. In a nutshell, following a plant-based diet can be a healthy and balanced lifestyle choice when nutrient intake is planned carefully.

Plant-based Diets as Unaffordable

Many critics argue that shifting towards a plant-based lifestyle is economically inconvenient, making it hard to replace the omnivore diet. Parlasca and Qaim (2022) examine the global meat consumption trends across various developed and developing countries. The results of the study indicate that following dietary patterns low in animal products may not be the most practical choice for many low-income households year-round. This finding arises from the fact that meat production is considered an important source of income and employment for many communities, particularly in low-income countries. Livestock is also perceived as a cultural tool for rural communities to provide power, transportation, and prestige (Baltenweck et al., 2020). As such, transitioning to a plant-based diet is challenging globally and specifically in the countryside.

In addition to the diets' limitations in low-income countries, many people find it expensive to replace their conventional food with animal product alternatives. Since these food alternatives are accounted as niche products because of their specialty, cost, and low supply. For instance, a survey conducted in the United Kingdom by Bryant (2019) reveals that more than 35% of meat-consuming Brits agree with the ethical and environmental

arguments in favor of plant-based diets. Nonetheless, the practicality of such diets is a major reason that hinders meat-eaters from following them.

Despite claims made by opponents about plant-based diets' unaffordability, there is evidence to suggest that these diets can be cost-competitive. Many researchers indicate the affordability of many types of food that make up the vegan diet across the world, especially in low-income countries. In a study published by Springmann et al. (2021), the authors assert that diets rich in legumes and whole grains are less costly in lower-middle-income countries than Western diets. Furthermore, although plant-based alternative products are considerably more expensive than conventional animal products, an analysis published by Specht (2019) demonstrates that the price of plant-based meat-analogous products is likely to fall. Food outlets and chain restaurants are also establishing themselves in the plant-based field. In 2018, the USA recorded a 31% increase in the number of chefs who have added vegan options to their menus (Garnett, 2019). Therefore, it is valid to interfere that vegetarian and vegan dishes are becoming easier and more convenient to access than previously.

Plant-based Diets as Self-defeating

Some argue that plant-based diets are self-defeating in terms of their harm to animals' welfare. Morals represent a major reason for people to adopt plant-based diets, besides many other motives such as health and the environment (Hopwood, 2020). For example, the notion of veganism is to exclude animal-derived food and bring farmed animal exploitation to an end. Nonetheless, a number of researchers claim that a vegan diet leads to the deaths of many animals in the crop production process. As such, opponents view moral veganism to defeat itself (Bobier, 2019).

According to Fischer and Lamey (2018), vegan food is implicated in the death of mice and other field animals during the crop cultivation process. The authors estimate that 15 animals per hectare (ha) are killed yearly by industrialized vegetable farming to produce a vegetarian diet composed of grains, fruits, and vegetables. Another study by Bicknell (2018) claims that agricultural practices in vegetable farms present a significant threat to the survival

of bees. Generally, plant-based dieters demand nuts, especially almonds, as this food category is an important component of their meals. However, the frequent pesticides used to protect almond trees from pests and insects such as bees can deteriorate the immune systems of these animals and lead to their deaths.

Although the opponent's argument on moral veganism has some merit, the situation can be tackled using multiple approaches. For instance, if the least harm principle is employed, then the adoption of a plant-based diet would cause less harm than that of an omnivorous diet (Davis, 2002). Since the principle, by definition, considers the option that will result in the least total sum of harm. Indeed, an article by Matheny (2003) reports that crop cultivation requires less than half as many hectares as ruminant animals need to deliver the same amount of protein. Therefore, the production of a plant-based diet is less cruel to animals than an omnivore diet.

Some critics also highlight the number of animals killed in plant-based diet production but neglect the suffering endured by these animals before their deaths (Alvaro, 2017). One way to approach the harmful effects yielded by crop and ruminant production is to compare the treatment of wild animals such as mice in a harvester versus a grass-fed cow. While a mouse can live freely and engage in natural activities like roaming and breeding, a grass-fed cow may experience burns from branding and be prevented from breeding naturally. In this case, shifting to plant-based dietary patterns results in fewer animal deaths and involves better treatment for animals.

Conclusion

The adoption of plant-based diets has many advantages over the omnivore diet. Among the many benefits that plant-based diets offer is that they promote the sustainability of the environment. This contribution results in reduced greenhouse gas emissions, the usage of less land for livestock cultivation, and the protection of various species' habitats. Plant-based diet food is also known for its low water footprint consumption, which ensures less food wastage and enhances food security. The positive influence of plant-based dietary

patterns can also be reflected in the health of its adopters, which involves reduced risk of inflammation, type-2 diabetes, and cardiovascular diseases.

In spite of the many hopes placed on plant-based diets, they are still a subject of debate for many researchers and misinformed members of our society. First, advocates of meat consumption perceive plant-based diets as unbalanced, as they view these diets to be absent of essential nutrients. On the other hand, studies reveal that the nutritional deficiencies that dieters experience are easily compensable if they track the amount and variety of their nutrient intake correctly. Second, these diets are often perceived to be unaffordable if incorporated into an individual's lifestyle. However, the evidence available proposes that there are many plant-based sources that are widely available and inexpensive in the markets. Third, some critics argue that a vegan diet is ethically self-defeating in terms of the harm it poses to the ruminant and grass-fed animals during the harvesting process. Again however, while that is partially true, critics fail to consider that such diets can result in the least harm to these animals when compared to other dietary habits.

Although plant-based dietary patterns are gaining more attention in the media and among health professionals, there is still a need for additional research to address the remaining issues relevant to these diets. Further research can also provide a better understanding of the health benefits and environmental impact of plant-based diets. Accordingly, governments and educational systems could encourage the new generation to incorporate plant-based diets into their lifestyles. This step is crucial for achieving an eco-friendlier environment and promoting the health and well-being of the people.

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