

Crops and Consequences: How Subsidized Agriculture Exacerbates Health Disparities in Marginalized Communities in the United States

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Background: The obesity epidemic in the United States has significant implications for public health and socioeconomic disparities, particularly impacting marginalized communities. This paper investigates how subsidized farm policies contribute to obesity by increasing the availability of energy-dense, nutrient-poor foods. These effects are exacerbated in communities with higher obesity rates due to socioeconomic and health disparities.

Methods: A comprehensive review of the literature was conducted, focusing on the relationship between subsidized agricultural policies and health outcomes in marginalized communities. The review analyzed studies on the impact of commodity crops, subsidies, and food accessibility on obesity rates and health disparities.

Results: The review found that agricultural subsidies predominantly support commodity crops, leading to the widespread availability of ultra-processed foods high in calories and low in nutrients. These foods are particularly prevalent in marginalized communities, which experience higher rates of obesity and obesity-related diseases due to socioeconomic factors and limited access to healthier food options.

Conclusions: Reallocating agricultural subsidies to support healthier produce and investing in programs that enhance food and health literacy could help mitigate the adverse health effects observed in marginalized communities. Addressing these issues through policy reform and community-based interventions is essential for promoting health equity and improving long-term wellness.

Keywords: Agricultural subsidies, obesity, health disparities, commodity crops, food literacy, marginalized communities

INTRODUCTION

The obesity epidemic continues to plague the United States. With an estimated 30% increase over the past two decades, two out of every three adults are now likely to be obese¹. The rise in obesity has also brought a rise in concomitant conditions including cardiovascular disease, type 2 diabetes, stroke, and cancer². The fiscal impacts of increased disease burden are additionally reflected in the annual medical costs of obesity, with an estimated \$173 billion in 2019³.

However, the distribution of obesity is disproportionate across communities. For example, Non-Hispanic Black adults in the United States experience higher rates of obesity compared to their White counterparts. According to the

Centers for Disease Control and Prevention (CDC), the prevalence of obesity among Non-Hispanic Black adults was 39.8%, significantly higher than that of Non-Hispanic White adults (29.9%). Stratification by income, education, geography further highlight disparities in diagnosis across communities⁴. To effectively treat and prevent the ramifications of obesity, it is essential to identify all of the contributing factors at play as obesity is a complex disease encompassing genetic predisposition, environmental exposure, and socioeconomic status.

Among this litany of causes is nutrition. Several studies identify nutrition as a major driver to the development of obesity^{5,6}. Consumption of ultra-processed, energy-dense, and nutrient poor foods, particularly those high in added sugars, unhealthy fats, and refined carbohydrates, has been repeatedly linked to the development of obesity⁷. As an individual's internal motivation is a strong driver of nutritional choices, many interventions have been aimed to increase individual awareness and health literacy^{8,9}.

Yet, there are also external barriers to nutrition that must be discussed. These include income, accessibility, and availability of produce--which have similarly prompted interventions at the levels of the individual and community^{10,11}. However, if considering that these external barriers also heavily revolve around the supply and demand of produce, then the events upstream of the consumer should be further investigated.

This brings into focus the subsidized farm policies of the United States. While subsidization has historically helped enhance food production, recent studies demonstrate a skewed distribution toward commodity crops that primarily make up ultra-processed, energy-dense, and nutrient poor foods¹². Therefore, this paper will explore how farming policies impact the nutritional environment in marginalized communities and subsequently contribute to exacerbating obesity, its related diseases, and health equity. Strategies to overcome these challenges will then be discussed.

Nutrition is an imperative crossroads at the intersection of

obesity-related diseases, health equity, and social justice. Poor nutrition can contribute to poor health outcomes while proper nutrition can help prevent disease, sustain long-term health, and empower individuals in marginalized communities.

METHODS

This review aims to examine the impact of subsidized farm policies on obesity and health disparities in marginalized communities in the United States. It evaluates the role of these policies in shaping the nutritional environment and explores potential strategies for improving health equity. The review is set within the context of the United States agricultural policy landscape and its intersection with public health. This review includes literature on farm subsidy policies, commodity crop production, nutritional outcomes, and health disparities. The study analyzes historical and current agricultural subsidy policies and their influence on food production and consumption. It also evaluates the impact of these policies on the availability of nutritious foods and health outcomes in marginalized communities. A comprehensive literature search was conducted using databases such as PubMed and Google Scholar. The search included terms such as “subsidized agriculture”, “health disparities”, and “obesity”. The review included studies published in the last ten years to ensure relevance and accuracy. Power calculation was not applicable.

RESULTS

A brief history of farm subsidies

Farm subsidies in the United States trace back to the early 20th century, with the first program being implemented to bolster World War I efforts and meet global demand¹³. Although the war ended, this increased rate of production did not, resulting in crop surpluses and dangerously plummeting prices amid the Great Depression¹⁴. As a result, the federal government created the first set of Farm Bills, the primary goal of which was to increase agricultural prices by incentivizing farmers to reduce surpluses of certain commodity crops¹⁵. While these initial interventions were meant to provide relief, they also inadvertently established a precedent for federal involvement in agriculture: to influence crop diversity, production, and prices.

The shift toward monocultures and commodity crops

Over the following decades, farm policies effectively shifted agriculture toward monocultures. For example, the Marketing Assistance Loan allowed farmers to take out low-interest loans using their harvested crops as collateral¹⁶. As a

result, farmers could hold their crops for better market conditions and higher prices; if market prices remained low, farmers could forfeit the crop to the government as repayment for the loan. While this program provided farmers with a financial safety net, it also essentially incentivized overproduction of easily grown commodity crops such as corn, soybeans, and wheat. According to the USDA, these monocultures also represent the top three crops in acreage, production, and gross farm receipts¹⁸. As monocultures overshadow the production of diverse crops, there is a subsequent reduced availability of more nutritious produce. This is exemplified by recent planting statistics from the USDA: as of 2023, approximately 94 million acres of corn and 84 million acres of soybeans were planted compared to that of 124 hundred thousand acres of lettuce and 589 hundred thousand acres of citrus.

Impacts of commodity crops on obesity and obesity-related diseases

An estimated 72% of calories consumed by Americans come from ultra-processed foods, the ingredients of which are primarily derived from commodity crops¹⁹. Such processed ingredients include high fructose corn syrup from corn, refined flour from wheat, and seed oil from soybeans. These ingredients are also high in calories, added sugars, and unhealthy fats, a nutritional profile that has been linked numerous times to weight gain and obesity^{19,20}. Highly-processed foods are further devoid of much of their original nutritional content. For example, refined wheat is stripped of its bran and germ, losing much of its fiber, vitamins, and minerals²¹. This dietary profile, of highly-processed and refined foods and low vegetable, fruit, and whole grain, intake has been generalized as the “Western diet”²². The Western diet is not only strongly associated with obesity but also with cardiovascular, gastrointestinal, and mental health and increased risk for cancers including brain, prostate, and breast^{23, 24, 25, 26, 27, 28}. Furthermore, commodity crops serve as a cheap feed for livestock, increasing the availability of fatty meats. In addition to being calorie dense, consumption of fatty meat is further positively correlated with cardiovascular diseases, hyperlipidemia, and pancreatic cancer^{23,29}.

Further impacts of commodity crops on marginalized communities

The health impacts of commodity crops also disproportionately affect the health of marginalized communities, particularly those of color, due to disparities in income, accessibility, and education. For example, the poverty rate among Black individuals in 2020 was 18.3%, significantly higher than that among White individuals (9.1%). Hispanic

individuals similarly experience higher poverty rates (15.7%)³⁰. Furthermore, studies suggest that low-income households allocate a larger proportion of their income to food expenditures compared to that of higher-income households³¹. Therefore, these communities often purchase inexpensive, poorly nutritious foods.

The prevalence and accessibility of these foods must also be discussed. First, low-income marginalized communities are more likely to be located in food deserts, which are characterized by a lack of grocery stores. An estimated 53.6 million people (17.4% of the United States population) is estimated to be low income and low access, which is defined as greater than one-half mile from a supermarket in an urban area or greater than 10 miles in a rural area³². Due to this limited nutritional landscape, residents tend to rely on fast food restaurants, liquor stores, and gas stations as their sources of food. This setting, termed a “food swamp”, is a stronger predictor of obesity rates than food deserts³³. While these shops are a pillar to their communities, they unfortunately also tend to lack access to fresh foods, favoring more processed foods for their longer shelf life. This environment therefore perpetuates a dietary habit of foods that are high in unhealthy fats, refined carbohydrates and ultimately, increases the risks for obesity.

An individual’s health literacy is also crucial for making informed nutritional decisions. Health literacy is defined as the cognitive and social skills that motivate and allow an individual to evaluate health information³⁴. Health literacy can be further classified into food literacy, which is defined as the knowledge, skills, and attitudes necessary to make informed decisions about food and its impacts on health³⁵. Proper health and food literacy therefore translate into good nutritional choices. Unfortunately, health and food literacy are poorer in low income and low education level communities³⁶. As mentioned, these communities are often surrounded by higher volumes of cheaply priced commodities. In addition to this, they are also more often targeted to purchase these products through advertisements. Advertisements are not only limited to television ads but also bus stops, billboards, and storefronts³⁷. The impacts of targeted advertisements on health are tangible, with this study further finding, compared to high-income white neighborhoods, 6 times more outdoor food advertising in Latino and Asian neighborhoods and 2-32 times more in African American neighborhoods. Thus, low income and education levels, decreased accessibility to fresh foods, increased accessibility to cheaply priced, highly-processed foods, and lower health and food literacy to navigate this environment are health inequities that are exacerbated by an influx of commodity crops.

DISCUSSION

While agricultural subsidies have increased the prevalence of commodity crops and therefore, highly-processed and poorly nutritious foods, the solution does not lie in eliminating these subsidies. Agricultural subsidies are essential to supporting farmers and feeding a vast population. However, the distribution of agricultural subsidies should be reworked. First, more funds should be allocated to subsidizing healthier, more nutritious produce. This can lower the price of these crops and thus, increase availability³⁸. Funds from agricultural subsidies could also be devoted to urban agriculture. Urban agriculture is defined as the practice of cultivating, processing, and distributing agricultural products in urban and suburban areas³⁹. Examples of this are community gardens, rooftop farms, aquaponic facilities, and vertical production. The benefits of these modalities are great, with one study finding that urban gardens not only helped make healthy food more accessible and affordable but also empowered citizens through increasing health literacy, providing jobs, and providing a sense of belonging⁴⁰. This model also importantly provides a level of community control to food production. Ultimately, rethinking where and what agricultural subsidies fund is instrumental to promoting health equity, uplifting communities socioeconomically, and most importantly, sustaining long-term health.

However, several studies argue against farm subsidies as a major driver of obesity. For example, one study highlights that other countries such as Japan and France do not demonstrate the same obesity rates as that of America, despite also having heavy agricultural subsidies⁴¹. While these findings do not demonstrate a clear correlation between agricultural subsidies and obesity, the sociocultural differences among these countries must be considered. For example, while the typical Western diet consists of foods such as red meats, sugary drinks, and fried food, the typical Japanese diet, Washoku, typically consists of high consumption of fish and soybean products and low consumption of fatty meats⁴². Thus, contrasting dietary and nutritional profiles among countries may account for the observed differences in obesity rates, despite similar levels of agricultural subsidies.

Another study performing regression analysis found that the effect of farm subsidies may be “too small” to influence consumer behavior through prices and therefore “does not have an effect on the proportion of the population being overweight or obese”⁴³. This finding was also rooted in a three-part framework of obesity as an “information deficiency problem”, “expression of the weakness of the will”, and “rational choice”. While the rational choice defines the role that farm policies play, the former two definitions focus

on the role of the individual. Information deficiency can be attributed to a lack of health and food literacy as previously discussed. However, whether the lack of these skills is due to an unwillingness to learn may be debated. The weakness of the will also suggests that individuals are located in food swamps due to dietary preference, despite understanding that these foods are unhealthy.

While these points are all important to consider, they do not mean that changes to agricultural subsidies should not occur. If anything, they signal that other changes must occur concurrently; namely, programs that improve not only an individual's knowledge of health and food literacy but also understanding and practice of these skills. Another component of health literacy is functional health literacy, which is the functional comprehension and critical analysis of nutritional health⁴⁴. For example, a study assessing the practice of health literacy in adults with nutrition-related chronic conditions predicted whether they adhered to healthy or unhealthy diet plans⁴⁵. This strategy is based on the Knowledge-Attitude-Behavior Theory, which proposes that health knowledge and information actively establish correct beliefs and attitudes towards disease and that "such attitudes are the driving forces for modifying patient behavior"⁴⁶. Therefore, agricultural subsidies should be reworked to fund comprehensive programs that not only teach health skills but also ensure the active practice of these lessons into lifelong healthy habits. Concurrently, integrating an understanding of disease and its development relative to nutrition while also shifting the availability of poorly nutritious and highly nutritious foods are reasons to redirect agricultural subsidies. Through this multicomponent approach, there is a greater chance of resolving the complex issue of obesity, its related diseases, and also promoting health equity and social justice for all communities.

CONCLUSION

In conclusion, the obesity epidemic in the United States is a complex and multifaceted challenge with wide implications for public health, socioeconomic equity, and future agricultural policies. This paper underscores the significant role of subsidized farm policies in shaping the nutritional environment, particularly through the promotion of energy-dense, nutrient-poor foods derived from commodity crops. Moreover, disparities in access to nutritious foods among marginalized communities further exacerbate the obesity crisis, highlighting the intersectionality of health, socioeconomic status, and systemic inequalities.

While agricultural subsidies are essential for supporting farmers and ensuring food security, their current allocation

disproportionately benefits the production of unhealthy foods and exploits vulnerable communities. Redirecting subsidies towards healthier produce and investing in urban agriculture initiatives offers promising avenues for promoting health equity and empowering communities through making informed nutritional choices. However, it is also still crucial to consider the counterarguments regarding the direct impact of subsidies on obesity rates; this emphasizes the need for comprehensive approaches rather than a complete wipeout of current agricultural policies.

Ultimately, reimagining agricultural subsidies represents a vital step towards addressing the obesity epidemic and advancing social justice. By encouraging collaboration between policymakers, public health experts, farmers, and communities, we can work towards creating a more equitable and sustainable food system that promotes lifelong wellness for all.

Competing Interests: The authors declare that they have no competing interests.

Funding: Not applicable

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