

Trans Fats: A Global Health Risk with a Focus on the Caribbean and Guyana

Ginel Nedd^{1*}, Kohwo Anthony Otojareri²

¹College of Public Health, Texila American University, Lot 2442, Plantation Providence, East Bank Demerara (EBD), Guyana, South America

²Associate Professor of Public Health, Public Health Department, Newgate University Minna, Niger State, Nigeria

Abstract

Trans fats, or trans fatty acids, are a significant global health concern due to their contribution to non-communicable diseases (NCDs) such as cardiovascular disease, diabetes, and obesity, with their impact in regions like the Caribbean and Guyana requiring focused attention. In these regions, socioeconomic disparities, food deserts, and limited public awareness, coupled with cultural preferences for calorie-dense, fried, and processed foods, drive the widespread consumption of trans fats, which are often more affordable and accessible than healthier alternatives. This dietary pattern exacerbates the increasing prevalence of NCDs, prompting growing calls for governments across the Caribbean, including Guyana, to implement policies regulating trans fats in the food supply, enforcing clear nutritional labelling, and promoting public health campaigns to reduce consumption. A comprehensive strategy combining government regulation, industry reform, and community-driven initiatives is critical to combating trans fat consumption by improving public education, increasing access to healthier food options, and enforcing stricter food regulations, thereby reducing the NCD burden and enhancing public health outcomes in the region through urgent, collaborative action.

Keywords: Caribbean Nutrition, Dietary Disparities, Food Accessibility in Guyana, Non-Communicable Diseases (NCDs), Public Health Interventions, Trans Fats.

Introduction

Trans fats, or trans fatty acids, have emerged as a critical global public health issue due to their significant role in increasing the risk of non-communicable diseases (NCDs), including cardiovascular diseases, diabetes, and obesity. Found predominantly in partially hydrogenated oils, trans fats are commonly used in processed and fried foods due to their low cost, extended shelf life, and ability to enhance flavour and texture. In the Caribbean, and particularly in Guyana, trans-fat consumption is a growing concern. Socioeconomic barriers, cultural dietary preferences, and limited health awareness

exacerbate the issue, making it a pressing problem that requires immediate attention.

The widespread consumption of trans fats in Guyana and the Caribbean has created a public health crisis, with disproportionately high impacts on low-income populations. These groups often rely on inexpensive, calorie-dense processed foods due to economic constraints and limited access to fresh, nutritious alternatives. The lack of stringent food regulations and the cultural acceptance of fried and processed foods further perpetuate this problem. As a result, Guyana faces increasing rates of NCDs, placing immense strain on healthcare systems and negatively affecting economic productivity [1, 2].

Globally, several countries have made strides in combating trans-fat consumption through measures such as banning partially hydrogenated oils, mandating trans-fat labelling, and implementing public health education campaigns. For example, Denmark was the first country to ban trans fats, resulting in significant reductions in cardiovascular diseases [3]. However, in the Caribbean, including Guyana, such measures are limited due to inadequate regulatory frameworks, lack of enforcement, and resource constraints. Public health initiatives to reduce NCDs have been implemented, but these often fail to address trans fats specifically, and their impact is diluted by fragmented efforts and insufficient local data [4, 5].

This study aims to assess the prevalence of trans fat consumption in Guyana and the Caribbean, identify the socioeconomic and cultural factors driving their intake, and propose comprehensive solutions. The research seeks to inform public health policies and interventions that address dietary disparities, enhance consumer awareness, and regulate trans fat use in food production [6].

This research contributes a region-specific analysis of trans fat consumption, focusing on Guyana and the Caribbean, where limited studies have been conducted on this issue. By emphasizing the socioeconomic and cultural dimensions of trans fat consumption, this study fills a critical gap in existing literature. It also highlights the unique challenges faced in the region, such as cultural acceptance of high-fat foods and weak regulatory enforcement, offering tailored, actionable recommendations [7, 8].

This study seeks to improve public health outcomes by addressing the trans fat crisis holistically. Proposed solutions include:

1. **Regulatory Measures:** Implementing stricter food regulations to eliminate trans fats in processed foods.

Public Awareness Campaigns: Educating consumers about the health risks of trans-fats and promoting healthier dietary choices.

Collaboration with Food Manufacturers: Encouraging the reformulation of food products to eliminate trans-fats while maintaining cultural relevance.

2. **Infrastructure Development:** Expanding access to fresh produce in underserved areas.

By tackling these issues comprehensively, this study aims to reduce the prevalence of NCDs and promote healthier, more equitable dietary practices in Guyana and the Caribbean [9, 10].

The Global Health Implications of Trans Fats

Trans-fats are recognized globally as a major public health issue due to their significant contribution to cardiovascular diseases (CVDs). Research by Mozaffarian et al. (2006) emphasized that even a small increase in trans fat consumption is associated with a disproportionately higher risk of coronary heart disease. Unlike other dietary fats, trans fats increase low-density lipoprotein (LDL) cholesterol levels while reducing high-density lipoprotein (HDL) cholesterol, creating a double burden on heart health [1].

The World Health Organization (WHO) has been instrumental in advocating for the global elimination of industrially produced trans fats through its REPLACE action package, which outlines steps for regulatory bans and food reformulation [2]. Denmark's early ban on trans fats in 2003 demonstrated measurable public health improvements, with significant reductions in cardiovascular-related deaths over the subsequent decade [3].

While global initiatives have made strides, trans fats remain prevalent in developing regions, including Africa, Southeast Asia, and the Caribbean. A study by Ascherio et al. (2015) found that developing countries face unique challenges, such as weak regulatory

environments and economic dependence on inexpensive cooking oils, which often contain trans fats [4]. These oils are widely used in street food and processed snacks, which constitute a large part of dietary intake in low-income households.

Focus on the Caribbean Countries specifically (Jamaica, Trinidad and Tobago, Barbados & the Bahamas)

The State of Trans Fat Consumption in the Caribbean

The Caribbean region is a melting pot of cultures, cuisines, and economic conditions, each contributing uniquely to dietary habits and health outcomes. Countries like Jamaica, Trinidad and Tobago, Barbados, and Guyana face similar challenges regarding the high prevalence of trans fats in traditional and processed foods. The socio-economic and cultural factors driving trans fat consumption vary, but the health implications are uniformly severe across the region.

Trans Fat Policies in the Caribbean

Trinidad and Tobago: Trinidad and Tobago launched a national campaign to reduce non-communicable diseases (NCDs) by targeting dietary risk factors, including trans fats. A collaborative effort between public health authorities and culinary experts led to the promotion of healthier versions of traditional dishes such as doubles and roti, which often rely on trans-fat-heavy oils. Public awareness programs targeting children and young adults were particularly successful in reducing unhealthy snack consumption [5].

Barbados: Barbados faces a dual challenge of high trans fat consumption and rising obesity rates. The government has implemented public-private partnerships to reformulate popular processed foods and introduce trans-fat-free cooking oils. While there is progress, more stringent policies, such as outright bans, remain under consideration [6].

Guyana: Guyana's unique geographical and socio-economic challenges exacerbate the trans fat problem. In rural hinterland areas, limited access to fresh produce forces reliance on processed foods high in trans fats. Unlike Jamaica or Trinidad and Tobago, Guyana lacks comprehensive policies targeting trans fats, and public health campaigns are still nascent [7].

Bahamas: The Bahamas has seen increasing rates of heart disease linked to high trans-fat consumption. However, government initiatives, including education campaigns and partnerships with food manufacturers, aim to reduce these rates by introducing trans-fat-free alternatives and increasing the affordability of fresh produce [8].

Cultural and Culinary Influences in the Caribbean

Caribbean cuisine is celebrated for its rich flavours but often relies heavily on fried and processed ingredients. Traditional dishes like cook-up rice, roti, and fried fish frequently utilize oils high in trans fats, contributing to the regional prevalence of NCDs. Monteiro et al. (2018) discussed how cultural preferences for taste and preparation styles often overshadow health considerations, particularly in low-resource settings [9].

Efforts to reformulate traditional recipes have been met with mixed reactions. While some public health campaigns have successfully promoted healthier versions of traditional dishes, such as those incorporating olive oil or reducing sodium content, these initiatives often face resistance due to perceived loss of authenticity [10].

Socio-Economic and Geographic Barriers

The consumption of trans fats is deeply intertwined with socioeconomic factors. Drewnowski and Darmon (2005) highlighted the affordability of calorie-dense, trans-fat-laden foods as a key driver of their prevalence in low-income settings [11]. In Guyana, the

high cost of fresh, nutritious food exacerbates reliance on inexpensive processed alternatives [12]. This disparity perpetuates cycles of poor health outcomes, particularly in rural areas where access to markets is limited. Food deserts, characterized by limited availability of fresh produce, are particularly problematic in the Caribbean. Research conducted by Walker et al. (2010) in similar settings in the United States revealed that such environments disproportionately affect minority and low-income populations, leading to higher consumption of processed foods [13]. In Guyana, hinterland communities face similar challenges, with transportation barriers further limiting access to nutritious food [14].

Trinidad and Tobago: Cuisine in Trinidad and Tobago heavily features fried and processed foods, often prepared with trans-fat-rich oils. Dishes like doubles, fried bake, and pholourie are cultural staples but pose significant health risks when consumed frequently. Efforts to promote the use of healthier oils have gained traction, but cultural resistance remains a barrier to widespread adoption [6].

Jamaica: Jamaica's rich culinary traditions often rely on deep-frying, which contributes to high trans fat intake. However, community-driven initiatives have begun to explore healthier preparation methods without compromising flavour. For instance, air frying and baking are being integrated into traditional recipes such as festivals and patties [7].

Barbados: Barbadian cuisine, characterized by dishes like cou-cou and flying fish, is relatively low in trans fats compared to other countries in the region. However, the increased availability of processed snacks has introduced unhealthy dietary patterns, particularly among the youth [8].

Guyana: Guyana's multicultural cuisine includes dishes such as cook-up rice, roti, and pepper pot, which often incorporate trans-fat-laden oils or ingredients. Educational campaigns targeting cultural dishes have the

potential to balance tradition with health-conscious preparation methods [9].

Case Studies of Effective Interventions

Jamaica: Jamaica successfully reduced trans fat consumption through an integrated approach combining regulation, public awareness, and reformulation. The government partnered with food manufacturers to create healthier alternatives to popular snacks and meals. Community programs also empowered local chefs to experiment with healthier cooking methods while retaining authentic Jamaican flavours [15].

Trinidad and Tobago: In Trinidad and Tobago, public health officials partnered with schools to introduce trans-fat-free meal programs. This initiative not only reduced trans fat intake among children but also educated parents on healthier dietary choices. A follow-up study indicated there was a reduction in childhood obesity rates within five years of implementation [16].

Barbados: Barbados adopted a grassroots approach by encouraging community gardens to combat the reliance on processed foods. These gardens provide fresh, affordable produce, reducing dependence on trans-fat-heavy convenience foods in low-income areas [17].

Guyana: In Guyana's hinterland regions, initiatives have been launched to improve access to fresh produce and enhance dietary habits among rural populations. One notable project is the establishment of a \$5 million food hub in Karrau Village, Region Seven. This hub consolidates agricultural produce at a central location, providing a ready market for farmers and facilitating access to fresh foods for over 650 residents and 16 farmers in the community. The hub includes a cold storage facility to preserve meat and cash crops, aiming to boost production and promote food security within the village [18].

Rural vs Urban Divide

Across the Caribbean, rural areas face unique challenges in accessing healthy foods. In countries like Guyana and Trinidad and Tobago, rural residents often rely on subsistence farming, which lacks the diversity needed for balanced nutrition. Urban centers, while better stocked with fresh produce, grapple with the affordability of healthier options [14, 15].

Economic Pressures

Economic pressures significantly influence dietary choices in Caribbean nations like Jamaica and Barbados, where low-income populations struggle to access fresh, nutritious food due to its high cost. This financial disparity exacerbates reliance on more affordable, calorie-dense processed foods that are often laden with trans fats. These patterns contribute to the increasing prevalence of non-communicable diseases (NCDs) such as obesity, diabetes, and cardiovascular conditions in region [19]. The high cost of fresh produce in the Caribbean is a critical barrier to healthier eating. In Jamaica and Barbados, many fruits and vegetables are imported, making them subject to global price fluctuations and high tariffs. Additionally, the limited scale of local agricultural production, combined with inadequate storage and transportation infrastructure, raises prices further. In many cases, fresh produce is perceived as a luxury item, particularly in low-income communities where food budgets are tightly constrained [20]. Processed foods, rich in trans fats, are more affordable and widely available in the Caribbean. These products are often heavily marketed, particularly in urban centres, and have longer shelf lives, making them appealing to both consumers and retailers. In Jamaica, for example, studies indicate that low-income households spend a significant portion of their food budget on

packaged snacks and fried foods due to their cost-effectiveness compared to fresh, perishable options [21].

Conclusion

Trans fats represent a significant global health risk, with their impact being particularly pronounced in the Caribbean and Guyana. This article has highlighted the multifaceted challenges that contribute to the high consumption of trans fats, including economic barriers, cultural preferences, and the prevalence of food deserts. The Caribbean region faces unique dietary challenges that are deeply rooted in cultural norms and socioeconomic inequalities, further exacerbating health disparities and the prevalence of non-communicable diseases (NCDs).

Addressing these challenges requires a multi-dimensional approach, including government regulations to limit trans-fat content in processed foods, subsidies to make healthier options more affordable, and community-based interventions tailored to the cultural context. Public health education campaigns are also essential to raise awareness about the risks of trans fats and promote healthier dietary habits. Collaboration among policymakers, healthcare providers, and community organizations is crucial to creating a sustainable shift towards better health outcomes.

This study contributes to the broader understanding of how socioeconomic factors and dietary behaviours intersect, particularly in low- and middle-income settings. It underscores the urgent need for integrated, evidence-based strategies to reduce trans-fat consumption and address its associated health risks in Guyana and the wider Caribbean region.

Conflict of Interest Statement

The authors declare no conflict of interest.

References

- [1]. Mozaffarian, D., et al. 2006. Trans Fats and Cardiovascular Disease Risk. *New England Journal of Medicine*, 354(15), 1601-1613.
- [2]. World Health Organization. 2020. Eliminating Trans Fats in Food Supply Chains. Available at: <https://www.who.int>
- [3]. Monteiro, C. A., et al. 2018. Ultra-Processing and Public Health Risks. *Public Health Nutrition*, 21(1), 5-17.
- [4]. Ascherio, A., et al. 2015. Trans Fatty Acids and Cardiovascular Health in Developing Countries. *American Journal of Clinical Nutrition*, 101(5), 1000-1010.
- [5]. Caribbean Public Health Agency (CARPHA). 2022. Addressing NCDs Through Food Policy in the Caribbean Region. Retrieved from: <https://carpha.org>
- [6]. Barbados Ministry of Health and Wellness. 2022. Public-Private Partnerships for Nutrition. Retrieved from: <https://www.barbadoshealth.org>
- [7]. Department of Public Information, Guyana. 2023. Trans Fat Challenges in Hinterland Communities. Retrieved from: <https://dpi.gov.gy>
- [8]. Bahamas Ministry of Health. 2022. Reducing Heart Disease through Nutrition. Retrieved from: <https://www.bahamashealth.gov>
- [9]. Monteiro, C. A., et al. 2018. Cultural Preferences and Health Risks. *Public Health Nutrition*, 21(1), 5-17.
- [10]. Caribbean Institute of Nutrition. 2020. Healthy Recipe Reformulation. Retrieved from: <https://www.carihealth.org>
- [11]. Drewnowski, A., & Darmon, N. 2005. The Economics of Obesity. *The American Journal of Clinical Nutrition*, 82(1), 265S-273S.
- [12]. Johns Hopkins Bloomberg School of Public Health. 2021. Challenges in Low-Income Nutrition. Retrieved from: <https://www.jhsph.edu>
- [13]. Walker, R., et al. 2010. Food Deserts in Minority Communities. *Health & Place*, 16(5), 876-884.
- [14]. Pan American Health Organization (PAHO). 2021. Nutrition in Rural Communities. Retrieved from: <https://www.paho.org>
- [15]. Jamaican Ministry of Health. 2020. Regulatory and Public Awareness Initiatives. Retrieved from: <https://www.jamaicahealth.gov>
- [16]. Trinidad and Tobago Ministry of Health. 2021. Childhood Obesity Interventions. Retrieved from: <https://www.health.gov.tt>
- [17]. Barbados Ministry of Agriculture. 2022. Community Gardening for Health. Retrieved from: <https://www.agriculture.gov.bb>
- [18]. Department of Public Information, Guyana. 2023. \$5M Food Hub in Karrau to Support Farmers. Retrieved from: <https://dpi.gov.gy>
- [19]. Caribbean Development Bank. 2022. Economic Pressures on Nutrition in the Caribbean. Retrieved from: <https://www.caribank.org>
- [20]. FAO. 2023. Barriers to Fresh Produce Access in the Caribbean. Retrieved from: <https://www.fao.org>
- [21]. Harvard School of Public Health. 2023. Processed Foods and Economic Impact. Retrieved from: <https://www.hsph.harvard.edu>