

ELIMINATION OF INDUSTRIALIZED TRANS-FATTY ACIDS FROM NIGERIAN MEALS – AN URGENT NEED FOR POLICY ADOPTION, IMPLEMENTATION, AND PUBLIC EDUCATION

O.F. Fagbule

Department of Periodontology and Community Dentistry, University of Ibadan and University College Hospital, Ibadan, Nigeria

Trans-fatty acids (TFAs) are types of unsaturated fatty acids that have at least one carbon-carbon double bond in the trans configuration (on opposite sides).¹ TFAs can be formed naturally in the gut of ruminant animals such as cows, sheep, and goats, through bacteria action on the ingested foods.^{1,2} They have also been found in other non-ruminant animal foods like chicken, pork, and fish.³ However, the most common source of TFAs are those produced in the factories through the partial hydrogenation of vegetable oils, whereby these oils are transformed into semi-solids/solids at room temperature. Meals that are made from the partially-hydrogenated oils would invariably contain industrialized trans-fatty acids (iTFAs) and a few examples include fried and deep-fried foods (plantain chips, fried meat, puff puff), bakery foods, pizza, biscuits, and margarine.^{1,4} The food industries like to use iTFA-containing vegetable oils because they are cheaper, have a longer shelf life, stable for deep-frying, and taste and smell good.¹ The consumption of ruminant animals is also a source of TFA, however, these natural sources are not considered a major problem because they are usually in very small quantities and the configuration of the trans-fat is not the same as iTFAs.^{1,5}

TFAs are fats that are considered unsafe for the body.¹ The iTFAs often increase Low-Density Lipoprotein (LDL) which increases the risk of cardiovascular problems and reduces the proportion of High-Density Lipoproteins (HDL) which is the healthier alternative.^{1,6} Several studies have shown a causal relationship between the use of iTFAs and cardiovascular diseases.^{1,7} More than 500,000 deaths in 2010 were attributed to non-communicable diseases (NCDs) from increased intake of TFAs,⁸ and most of these deaths are from the low and middle-income countries (LMICs), including Nigeria.⁸

The World Health Organization (WHO) having identified the consumption of iTFA as a public health problem, recommended that countries eliminate iTFA from the food supply chain in all countries by 2023.⁹ The “REPLACE” package by the WHO recommends that countries should engage in the following activities: **Review the dietary sources of TFAs and the landscape for required policy change;** **Promote the replacement of industrially-produced TFA with healthier oils and fats;** **Legislate or enact**

regulatory actions to eliminate industrially produced TFA; **Assess and monitor TFA content in the food supply and changes in TFA consumption in the population;** **Create awareness of the negative health impact of TFA, and** **Enforce compliance with policies and regulations.**⁹

Many countries, especially those in High-Income Countries (HICs) have implemented these recommendations, including the reduction of iTFAs in foods to <1% of the total energy intake (<2.2 g/day in a 2,000-calorie diet), and have witnessed significant reductions in cardiovascular diseases and other NCDs as a direct benefit of these actions.² While many HICs have enacted these policies, this is not the case in LMICs, like Nigeria.¹⁰ The burden of NCDs including cardiovascular diseases (CVDs), stroke, and myocardial infarction, have increased in Nigeria in the last few decades.^{11,12} This increase has also coincided with a significant change in our diet, with increased importation of foreign dishes that relied heavily on deep-frying of food products, snacks, pizzas, and fast foods, most of which are prepared using partially hydrogenated oils.⁴

Although public health professionals and the relevant government agencies (NAFDAC, Federal Ministry of Health) have identified a need to eliminate iTFAs from the food supply chain, there are numerous obstacles to achieving this. Some of the current challenges with the elimination of iTFA include the lack of regulations on the quantity/proportion of iTFAs in foods produced in the country. Although the “Oils and Fats Regulations, 2021” have been submitted to the Ministry of Justice, it is yet to be gazetted and implemented. A coalition of efforts from Non-Governmental Organizations, including Corporate Accountability and Public Participation Africa (CAPP), Network for Health Equity and Development (NHED), Global Alliance for Improved Nutrition (GAIN), and other stakeholders have made an appreciable impact in recent years advocating for the adoption and implementation of the oils and fats regulations. They have also consistently engaged in public sensitization on the dangers caused by the consumption of iTFA-containing meals.

There are viable alternatives to the iTFA-containing vegetable oils that the industries can adopt as

replacements for the harmful iTFA. Food industries in other countries have adopted these alternatives (cis unsaturated fatty acids) and there was no appreciable increase in the prices of food or reduction in their quality or taste,¹³ which are often the common excuses by the food industries.¹² These healthier alternatives should also be explored and adopted in Nigeria. Public education is another major step that must be undertaken to achieve iTFA-free meals in Nigeria. Health professionals and other stakeholders, including the NGOs, need to urgently and aggressively embark on mass sensitization of the public on the need for them to look out for food items with high transfat and avoid purchasing and consuming them. They need to check the labels on the oils and food items that they purchase to ensure that they do not contain TFAs or do not exceed 2 grams per 100 grams of oil or fat. While the government has a role in making the healthier choice the easier choice, the populace also needs to have the skills to decipher and choose healthier alternatives.

Although there are indisputable pieces of evidence showing the adverse health effects of iTFAs, there is still a need for studies to assess the content of iTFAs in Nigerian meals.⁴ There is a need for national surveys and surveillance systems to monitor iTFA levels in foods.¹⁴ The empirical information from these surveys will provide the needed data to plan and evaluate interventions, quantify their health benefits, and guide their modifications.

In summary, meals with a high iTFA content are a major source of avoidable morbidity and mortality in Nigeria, with no significant benefit. There is an urgent need to address this problem by adopting and implementing the WHO-recommended “REPLACE” package. As opined by Li and others,¹⁴ the “elimination of iTFAs from the food supply is politically viable, economically favourable, and technically feasible.” Hence, we urge the government and other stakeholders, including NGOs, health professionals, researchers, and the media, to make concerted efforts to eliminate iTFAs from Nigerian meals

REFERENCES

1. **Mozaffarian D**, Katan MB, Ascherio A, *et al*. Trans fatty acids and cardiovascular disease. *N Engl J Med*. 2006 Apr 13;354(15):1601–1613.
2. **Wanders AJ**, Zock PL, Brouwer IA. Trans fat intake and its dietary sources in general populations worldwide: A systematic review. *Nutrients*. 2017 Aug 5;9(8). Available from: <https://pubmed.ncbi.nlm.nih.gov/28783062/>
3. **Colón-Ramos U**, Monge-Rojas R, Campos H. Impact of WHO recommendations to eliminate industrial trans-fatty acids from the food supply in Latin America and the Caribbean. *Health Policy Plan*. 2014;29(5):529–541.
4. **Anjorin OM**. Mapping of Industrially-produced Trans-Fatty Acids (iTFA) in Nigeria. Lagos; 2020. Available from: <https://www.gainhealth.org/sites/default/files/publications/documents/mapping-industrially-produced-trans-fatty-acids-in-nigeria.pdf>
5. **Willett W**, Mozaffarian D. Ruminant or industrial sources of trans fatty acids: Public health issue or food label skirmish? *Am J Clin Nutr*. 2008 Mar 1;87(3):515–516.
6. **Brouwer IA**, Wanders AJ, Katan MB. Effect of animal and industrial Trans fatty acids on HDL and LDL cholesterol levels in humans - A quantitative review. *PLoS One*. 2010 Mar 2;5(3):e9434. doi:10.1371/journal.pone.0009434
7. **Mozaffarian D**, Rimm EB, King IB, *et al*. Trans Fatty acids and systemic inflammation in heart failure. *Am J Clin Nutr*. 2004;80(6):1521–1525.
8. **Wang Q**, Afshin A, Yakoob MY, *et al*. Impact of nonoptimal intakes of saturated, polyunsaturated, and trans fat on global burdens of coronary heart disease. *J Am Heart Assoc*. 2016 Jan 1;5(1). Available from: <https://pubmed.ncbi.nlm.nih.gov/26790695/>
9. **Ghebreyesus TA**, Frieden TR. REPLACE: a roadmap to make the world trans fat free by 2023. *Lancet*. 2018 May 19;391(10134):1978–1980.
10. WHO. Countries with regulations protecting people from industrially produced trans fat tripled over the past year. World Health Organization. 2021. Available from: <https://www.who.int/news/item/07-12-2021-countries-with-regulations-protecting-people-from-industrially-produced-trans-fat-tripled-over-the-past-year>
11. **Ike S**, Onyema C. Cardiovascular diseases in Nigeria: What has happened in the past 20 years? *Niger J Cardiol*. 2020;17(1):21–26.
12. **Hamid S**, Groot W, Pavlova M. Trends in cardiovascular diseases and associated risks in sub-Saharan Africa: a review of the evidence for Ghana, Nigeria, South Africa, Sudan and Tanzania. *Aging Male*. 2019 Jul 3;22(3):169–176.
13. **Leth T**, Jensen HG, Mikkelsen AÆ, Bysted A. The effect of the regulation on trans fatty acid content in Danish food. *Atheroscler Suppl*. 2006 May;7(2):53–56.
14. **Li C**, Cobb LK, Vesper HW, Asma S. Peer Reviewed: Global surveillance of trans-fatty acids. *Prev Chronic Dis*. 2019 Oct 1;16(10). doi:10.5888/PCD16.190121