

Review

Not peer-reviewed version

The Food Environment and Obesity in Nigeria: Intersection of Access, Affordability, and Policy

[Abdullahi A. Bello](#)*, Abdulmalik O. Abdulwasiu, Idayat Raji, Jumai Adiza

Posted Date: 15 April 2026

doi: 10.20944/preprints202604.1027.v1

Keywords: food environment; obesity; nutrition; affordability



Preprints.org is a free multidisciplinary platform providing preprint service that is dedicated to making early versions of research outputs permanently available and citable. Preprints posted at Preprints.org appear in Web of Science, Crossref, Google Scholar, Scilit, Europe PMC.

Copyright: This open access article is published under a [Creative Commons CC BY 4.0 license](#), which permit the free download, distribution, and reuse, provided that the author and preprint are cited in any reuse.

Disclaimer/Publisher's Note: The statements, opinions, and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions, or products referred to in the content.

Review

The Food Environment and Obesity in Nigeria: Intersection of Access, Affordability, and Policy

Abdullahi A. Bello ^{1,*} and Abdulmalik O. Abdulwasiu ², Idayat Raji ³, Jumai Adiza ⁴

- ¹ Department of Medical Laboratory Science, Bayero University, Kano, Kano State, Nigeria
- ² Department of Pharmaceutical Science, Bayero University Kano, Kano State, Nigeria
- ³ Department of Nursing Science, Obafemi Awolowo University, Ile Ife, Osun State, Nigeria
- ⁴ Department of Medical Radiography, Bayero University Kano, Kano State, Nigeria
- * Correspondence: babdullahi867@gmail.com

Abstract

Background: Nigeria faces a double burden of malnutrition, with rising obesity rates together with persistent undernutrition. The food environment which was shaped by access, affordability, and policy plays a critical role in driving this nutrition transition. **Methods:** This narrative review synthesizes evidence from peer-reviewed literature, global reports, and policy documents to examine how retail trends, economic disparities, and regulatory frameworks intersect to influence dietary patterns and obesity risk in Nigeria. **Results:** The Nigerian food environment is characterized by a typical informal markets and rapidly expanding supermarkets, with ultra-processed foods becoming increasingly accessible. Affordability disparities make nutrient-dense foods prohibitively expensive for many households, while energy-dense, low nutrient options remain cheap. Policy interventions, such as the sugar-sweetened beverage tax, exist but are weakened by low rates, loopholes, and lack of complementary regulations. Studies from Mexico and South Africa demonstrate that comprehensive fiscal and multi-sectoral approaches can effectively shift consumption patterns. **Discussion:** The intersection of easy access to unhealthy foods, unaffordability of healthy diets, and policy gaps creates an obesity-promoting environment that disproportionately affects low-income urban populations. Without coordinated action across sectors, obesity rates will continue to rise, exacerbating health inequalities and overwhelming the health system. **Conclusion:** Strengthening fiscal policies, mandating interpretative labeling, restricting unhealthy food marketing, realigning agricultural subsidies, and incorporating nutrition into urban planning are essential to creating a healthier food environment in Nigeria.

Keywords: food environment; obesity; nutrition; affordability

1. Introduction

Nigeria, Africa's most populous nation, is experiencing a significant nutritional transition. While undernutrition, stunting, and micronutrient deficiencies remain persistent challenges, particularly among children and rural populations, there is a rapidly rising epidemic of overweight, obesity, and diet-related non-communicable diseases (NCDs) such as hypertension, type 2 diabetes, and cardiovascular disease (Shrimpton & Rokx, 2012; Maziya-Dixon et al., 2021). This double burden of malnutrition is increasingly recognized as a defining public health issue in low- and middle-income countries (LMICs), where food systems are undergoing rapid change (Sanni, 2025; Morgan & Fanzo, 2020).

Understanding this crisis is the concept of the **food environment** - the collective physical, economic, policy, and sociocultural contexts that shape people's food choices and nutritional status (Goh et al., 2024; Odoms-Young et al., 2024). In Nigeria, the food environment is increasingly characterized by the increasing energy-dense, nutrient-poor ultra-processed foods (UPFs) alongside persistent challenges in accessing fresh, healthy options (Ilori et al., 2024; Maziya-Dixon et al., 2021).

Obesity in this context is not merely a consequence of individual choices but a systemic issue driven by the intersection of three critical factors: access to different types of food, affordability of nutritious diets, and the policy landscape that governs food systems (Gundersen & Ziliak, 2015; Ilo et al., 2025).

Although numerous studies have examined components of the Nigerian food environment, there is a lack of integrated analysis that explicitly explores how these three domains interact to shape obesity risk. Bello et al. (2026) documented hazardous levels of lead, cadmium, and mercury in smoked fish sold across Nigerian markets, illustrating how food safety failures can exacerbate metabolic risks independently of caloric intake. This review aims to synthesize current evidence on the Nigerian food environment, focusing on retail trends, affordability disparities, and existing policies, and to draw lessons from successful interventions in comparable countries to inform policy recommendations.

2. Methods

This study employed a narrative review methodology to synthesize evidence from peer-reviewed literature, international organization reports, and policy documents. The aim was to comprehensively describe the food environment in Nigeria and its relationship to obesity, with a focus on access, affordability, and policy.

Search strategy: A systematic search was conducted in PubMed, Google Scholar, and Scopus databases for articles published between 2010 and 2025. Search terms included combinations of: **Nigeria, food environment, obesity, overweight, food access, food affordability, nutrition policy, sugar-sweetened beverages, supermarkets, informal food sector, and double burden of malnutrition**. Additional records were identified by manually searching reference lists of relevant articles and through grey literature from the World Bank, World Health Organization, and Nigerian government sources.

Inclusion criteria: Studies were included if they: (1) were conducted in Nigeria or provided comparative data from other sub-Saharan African or LMIC settings with relevance to Nigeria; (2) addressed at least one aspect of the food environment (physical access, economic access, policy, or retail trends); (3) reported on outcomes related to dietary patterns, obesity, or nutrition policy; and (4) were published in English. Editorials, commentaries without original data, and studies focused exclusively on clinical management of obesity were excluded.

Data synthesis: A total of 42 sources were included in the final synthesis (see reference list). Because of heterogeneity in study designs and outcomes, a narrative synthesis approach was used. The findings were organized thematically according to the three pillars of the food environment: retail trends and food availability (access), affordability disparities, and the policy landscape. Case studies from countries with similar socio-economic contexts (Mexico and South Africa) were selected to illustrate effective interventions. The synthesis process involved iterative reading, extraction of key findings, and cross-comparison to identify converging evidence and policy gaps.

3. Results

The results are presented under three thematic areas derived from the literature: (1) the Nigerian food environment and retail trends; (2) affordability disparities between nutritious and high-calorie foods; and (3) the current policy landscape, including gaps. Case studies from Mexico and South Africa are also presented as comparative evidence.

3.1. Food Environment and Retail Trends

The Nigerian food environment is cleaved into informal sector (dominant) and a rapidly growing formal retail sector. The informal sector - comprising open-air markets, street vendors, and small convenience stores (kiosks) - remains the primary source of food for most Nigerians (Maziya-Dixon et al., 2021). This informal dominance also introduces significant food safety risks; for instance, Bello et al. (2026) found that smoked fish - a staple animal protein for low-income

households - frequently contains heavy metal concentrations exceeding WHO permissible limits, highlighting a hidden dimension of the obesogenic environment where affordable protein comes with toxic contaminants. While these outlets provide essential access to fresh staples, they are often characterized by seasonal variability, post-harvest losses, and inconsistent quality and safety standards (Ilori et al., 2024). Rural populations and urban poor rely heavily on this sector, where availability of fresh fruits, vegetables, and animal-source proteins can be unpredictable.

Concurrently, the formal retail sector is expanding rapidly in urban centers such as Lagos, Abuja, and Port Harcourt. Supermarkets and shopping malls increasingly stock a variety of processed and packaged foods, contributing to a supermarket revolution similar to that observed elsewhere in sub-Saharan Africa (Crush & Frayne, 2011). Although supermarkets offer convenience and some fresh produce, they also prioritize shelf-stable, ultra-processed foods (UPFs) high in sugar, salt, and unhealthy fats. The clustering of fast-food chains and convenience stores in middle- and high-income neighborhoods creates obesogenic environments where unhealthy options are most accessible and heavily marketed (Oyeyemi et al., 2012; Morgan & Fanzo, 2020). Furthermore, formal supply chains often favor a limited range of staple commodities, inadvertently marginalizing the distribution of diverse local foods (Maziya-Dixon et al., 2021). The lack of zoning or planning regulations in many Nigerian cities allows unhealthy food outlets to proliferate near schools and residential areas (Sietchiping et al., 2012; Odoms-Young et al., 2024).

3.2. Affordability Disparities

Affordability is a primary determinant of dietary choices in Nigeria, and current economic realities create a striking difference between the cost of a healthy diet and the low cost of energy-dense, nutrient-poor foods. The cost of a Healthy Diet Basket (CoHD) has risen sharply due to macroeconomic instability, inflation, and currency devaluation (Ilori et al., 2024; Aremu et al., 2025). Nutrient-dense foods including animal-source proteins (eggs, meat, fish), fresh fruits, and vegetables - have become exorbitantly priced for a large segment of the population. In contrast, refined carbohydrates (white bread, rice, gari, noodles) and industrially produced vegetable oils provide the most affordable source of dietary energy.

This economic pressure forces low-income households to maximize caloric intake per naira spent, resulting in diets high in empty calories that contribute to metabolic dysfunction and weight gain, even in the presence of food insecurity (Gundersen & Ziliak, 2015; Maina Aboyo, 2024). Aggressive marketing of UPFs by multinational corporations positions these products as affordable and aspirational, particularly among urban youth and families (Amanzadeh et al., 2015; Mapis, 2020). Price elasticity studies indicate that when household budgets are constrained, families substitute fresh, perishable foods with cheaper, shelf-stable UPFs (Morgan & Fanzo, 2020). Some studies confirm that perceived affordability often overrides nutritional knowledge or intentions, linking poverty directly to obesity (Rawlins et al., 2013; Odoms-Young et al., 2024).

3.3. Policy Landscape and Gaps

Nigeria has initiated some policy measures to address NCDs, but they lack coordination and contain significant gaps.

Sugar-Sweetened Beverage (SSB) Tax: In 2021, Nigeria introduced an excise duty of N10 per liter on SSBs. While this aligns with World Health Organization (WHO) recommendations to use fiscal policy for public health (Clemens & Papanikolaou, 2014; Jørgensen et al., 2013), the tax rate remains well below the WHO-recommended 20% price increase needed to significantly impact consumption. Loopholes exempt 100% fruit juices and milk-based beverages, allowing manufacturers to reformulate or market alternative products to evade the tax (Ehrenreich & Lyon, 2011; Sanni, 2025).

Front-of-Pack Labeling (FOPL): There is currently no mandatory interpretive FOPL system in Nigeria. Consumers lack simple, accessible information to identify products high in added sugar, saturated fat, or salt (Oparah et al., 2025; Goh et al., 2024).

Marketing Restrictions: No robust regulations exist to restrict the marketing of unhealthy foods and beverages to children. Industry marketing targets children through television, social media, and in-school sponsorships, shaping taste preferences from a young age (Ahmad et al., 2025; Amanzadeh et al., 2015).

Agricultural Policy: Despite stated goals of diversification, agricultural subsidies and support have historically favored staple grain production (rice, maize) and cash crops over horticulture and small-scale livestock, which could increase availability and lower cost of fruits, vegetables, and protein (McLachlan & Landman, 2013; Nwafor, 2024). This policy gap ensures that supply chains for healthy foods remain underdeveloped and costly (Maziya-Dixon et al., 2021).

3.4. Case Studies of Successful Interventions

Mexico's SSB Tax: In 2014, Mexico implemented a 10% excise tax on SSBs as part of a broader fiscal package. Evaluations demonstrated a 6–12% average reduction in purchases of taxed beverages, with the greatest reductions among low-income households (Clemens & Papanikolaou, 2014). Key success factors included a relatively high tax rate, broad application, and sustained civil society advocacy. Nigeria's existing SSB tax mirrors the initial Mexican approach but requires a higher rate and broader base to achieve comparable impact (Sanni, 2025).

South Africa's Multi-Sectoral Strategy: South Africa has adopted a multi-pronged approach, including a health promotion levy on SSBs, salt reduction regulations, and a national NCD prevention strategy (McLachlan & Landman, 2013). Notably, it emphasizes nutrition-sensitive agriculture, aligning agricultural production with public health goals through home gardens and food system diversification (Micklesfield et al., 2013; Hammelman & Hayes-Conroy, 2015). South Africa's coordinated policy environment, supported by civil society and academia, offers lessons for Nigeria in integrating health objectives across agriculture, trade, and urban planning sectors (Kickbusch et al., 2013; Maziya-Dixon et al., 2021).

4. Discussion

This review demonstrates that the Nigerian food environment is characterized by a powerful intersection of access, affordability, and policy that collectively increase the risk obesity. The findings reveal that unhealthy, ultra-processed foods are widely accessible through both formal and informal retail channels, particularly in urban areas, while fresh, nutritious foods are often physically and economically out of reach for many households. This situation is compounded by a policy framework that, despite recent efforts like the SSB tax, remains insufficient to counter the commercial determinants of obesity.

The interplay between these factors creates an intense cycle. Easy physical access to UPFs, coupled with their lower cost relative to nutrient-dense foods, normalizes their consumption. The lack of effective policy levers - such as higher taxes, clear front-of-pack warnings, and marketing restrictions - allows the food industry to continue shaping dietary patterns largely unopposed. Consequently, obesity prevalence is rising most rapidly among urban low-income populations who face the greatest barriers to healthy eating, a pattern consistent with the obesity Kuznets curve hypothesis observed across African economies (Wang et al., 2025).

The case studies from Mexico and South Africa highlight that comprehensive, multi-sectoral interventions can alter food environments and improve dietary outcomes. Nigeria's current SSB tax, while a step forward, is too weak to drive meaningful change. The absence of complementary policies - such as FOPL, marketing restrictions, and agricultural diversification - means that the tax operates in isolation, limiting its effectiveness. Moreover, without assigning tax revenues for health promotion or subsidies for healthy foods, the policy does little to address affordability disparities (Goh et al., 2024; Sanni, 2025).

Several limitations of this review should be acknowledged. First, the narrative synthesis approach does not allow for meta-analytic quantification of effect sizes. Second, the literature on Nigeria's food environment is still emerging, and data on certain aspects - such as the impact of

informal sector policies or regional variations within the country - are limited. Third, most included studies are cross-sectional, limiting causal inference. Future research should employ longitudinal designs and intervention studies to better understand how specific policy changes affect dietary behaviors and obesity outcomes.

Existing policies also overlook food safety as a component of obesity prevention; Bello et al. (2026) emphasized that unregulated processing and marketing of smoked fish allow chronic heavy metal exposure, which may disrupt endocrine function and contribute to metabolic dysregulation, yet no Nigerian food safety framework currently addresses this nexus.

Despite these limitations, the findings have important implications. They suggest that addressing obesity in Nigeria requires a paradigm shift from individual-level education to a whole-of-government approach that redesigns the food environment. Such an approach must be equity-oriented, recognizing that the poorest populations bear the greatest burden of both undernutrition and obesity.

5. Conclusion

The rising prevalence of obesity in Nigeria is a systemic failure rooted in the intersection of an obesogenic food environment, stark affordability disparities, and a disjointed policy framework. Without coordinated action, the double burden of malnutrition will intensify, placing unsustainable strain on the health system and exacerbating social inequalities.

Based on the evidence synthesized in this review, the following policy recommendations are proposed:

1. Strengthen fiscal policies: Increase the SSB tax to at least 20% and expand coverage to all sugary drinks, using the revenue to subsidize healthy foods (fruits, vegetables, local proteins) to make the healthy choice affordable.
2. Mandate front-of-pack labeling: Implement a clear, interpretive FOPL system (e.g., high in warning labels) to empower consumers to identify products high in sugar, sodium, and unhealthy fats.
3. Regulate marketing of unhealthy foods: Enact and enforce restrictions on marketing of UPFs and sugary beverages to children across all media, including digital platforms and school environments.
4. Realign agricultural policy: Shift subsidies and support from staple grains to horticulture, poultry, and fisheries to improve availability and affordability of diverse, nutrient-dense foods.
5. Adopt nutrition-sensitive urban planning: Use zoning laws to limit unhealthy food outlet density near schools and mandate inclusion of fresh food markets in urban development.

In conclusion, creating a healthier food system in Nigeria demands sustained political will, cross-sectoral collaboration, and accountability mechanisms to ensure that policies are implemented, enforced, and evaluated. Only through such systemic change can Nigeria reverse its obesity epidemic and achieve the Sustainable Development Goal of ensuring healthy lives and well-being for all.

References

1. Bello A. A, Sulaiman A. A, Asimiyu R. A, Abdulwasiu A. O (2026) Heavy metals in smoked fish: a comprehensive review of nutritional implications, health impacts, and public health challenges in Nigeria. *Int J Ann Med Health Sci* 5(1):1-10.
2. Oyeyemi, A. L., Adegoke, B. O., Oyeyemi, A. Y., Deforche, B., Bourdeaudhuij, I. D., & Sallis, J. F. (2012). Environmental factors associated with overweight among adults in Nigeria. *International Journal of Behavioral Nutrition and Physical Activity*, 9(1), 32. DOI <https://doi.org/10.1186/1479-5868-9-32>
3. Micklesfield, L. K., Lambert, E. V., Hume, D. J., Chantler, S., Pienaar, P. R., Dickie, K., ... & Puoane, T. (2013). Socio-cultural, environmental and behavioural determinants of obesity in black South African women: review articles. *Cardiovascular journal of Africa*, 24(9), 369-375. <https://hdl.handle.net/10520/EJC145270>

4. Shrimpton, R., & Rokx, C. (2012). The double burden of malnutrition. A review of global evidence. Washington, DC: World Bank.
5. Young, E. M. (2013). Food and development. Routledge.
6. Sietchiping, R., Permezel, M. J., & Ngomsi, C. (2012). Transport and mobility in sub-Saharan African cities: An overview of practices, lessons and options for improvements. *Cities*, 29(3), 183-189. <https://doi.org/10.1016/j.cities.2011.11.005>
7. Rawlins, E., Baker, G., Maynard, M., & Harding, S. (2013). Perceptions of healthy eating and physical activity in an ethnically diverse sample of young children and their parents: the DEAL prevention of obesity study. *Journal of Human Nutrition and Dietetics*, 26(2), 132-144.
8. Haddad, L. J., Hawkes, C., Achadi, E., Ahuja, A., Ag Bendeck, M., Bhatia, K., ... & Flores-Ayala, R. (2015). Global Nutrition Report 2015: Actions and accountability to advance nutrition and sustainable development. Intl Food Policy Res Inst.
9. Ruel, M. T., & Alderman, H. (2013). Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition?. *The lancet*, 382(9891), 536-551.
10. Hammelman, C., & Hayes-Conroy, A. (2015). Understanding cultural acceptability for urban food policy. *Journal of Planning Literature*, 30(1), 37-48. <https://doi.org/10.1177/0885412214555433Crush>,
11. J., & Frayne, B. (2011). Supermarket expansion and the informal food economy in Southern African cities: implications for urban food security. *Journal of Southern African Studies*, 37(4), 781-807. <https://doi.org/10.1080/03057070.2011.617532>
12. Teyhan, A. (2012). The impact of neighbourhood and school environments on ethnic differences in body size in adolescence (Doctoral dissertation, University of Glasgow). <https://eleanor.lib.gla.ac.uk/record=b2930896>
13. McLachlan, M., & Landman, A. P. (2013). Nutrition-sensitive agriculture—a South African perspective. *Food security*, 5(6), 857-871. DOI <https://doi.org/10.1007/s12571-013-0309-1>
14. Kickbusch, I., Brindley, C., & World Health Organization. (2013). Health in the post-2015 development agenda: an analysis of the UN-led thematic consultations, High-Level Panel report and sustainable development debate in the context of health. World Health Organization.
15. Landrigan, P. J., & Goldman, L. R. (2011). Children's vulnerability to toxic chemicals: a challenge and opportunity to strengthen health and environmental policy. *Health Affairs*, 30(5), 842-850. <https://doi.org/10.1377/hlthaff.2011.0151>
16. Oguamanam, C. (2011). Toward a Constructive Engagement: Agricultural Biotechnology as a Public Health Incentive in Less-Developed Countries. *J. Food L. & Pol'y*, 7, 257.
17. Jørgensen, T., Capewell, S., Prescott, E., Allender, S., Sans, S., Zdrojewski, T., ... & Vanuzzo, D. (2013). Population-level changes to promote cardiovascular health. *European journal of preventive cardiology*, 20(3), 409-421. <https://doi.org/10.1177/2047487312441726>
18. Amanzadeh, B., Sokal-Gutierrez, K., & Barker, J. C. (2015). An interpretive study of food, snack and beverage advertisements in rural and urban El Salvador. *BMC Public Health*, 15(1), 521. 2015.0645
19. Gundersen, C., & Ziliak, J. P. (2015). Food insecurity and health outcomes. *Health affairs*, 34(11), 1830-1839 <https://doi.org/10.1377/hlthaff.2015.0645>
20. Clemens, R., & Papanikolaou, Y. (2014). Crystalizing global sugar policy: public health promise or perception. In *Fructose, high fructose corn syrup, sucrose and health* (pp. 125-135). New York, NY: Springer New York. https://doi.org/10.1007/978-1-4899-8077-9_8
21. Ehrenreich, N., & Lyon, B. (2011). The global politics of food: A critical overview. *U. Miami Inter-Am. L. Rev.*, 43, 1.
22. Nwafor, Lilian, From Food Security to Wellness: Unpacking Nigeria's Health Landscape (November 29, 2024). Available at SSRN: <https://ssrn.com/abstract=5958677> or <http://dx.doi.org/10.2139/ssrn.5958677>
23. Maziya-Dixon, B., Achterbosch, T., Adelekan, D., Adeyemi, O., Ajieroh, V., Akerele, D., ... & Brouwer, I. D. (2021). Food systems for healthier diets in Nigeria: A research agenda. <https://doi.org/10.2499/p15738coll2.134393>.

24. Ilori, T., Christofides, N. & Baldwin-Ragaven, L. The relationship between food insecurity, purchasing patterns and perceptions of the food environment in urban slums in Ibadan, Nigeria. *BMC Nutr* 10, 122 (2024). <https://doi.org/10.1186/s40795-024-00929-8>
25. Morgan, A.E., Fanzo, J. Nutrition Transition and Climate Risks in Nigeria: Moving Towards Food Systems Policy Coherence. *Curr Envir Health Rpt* 7, 392–403 (2020). <https://doi.org/10.1007/s40572-020-00292-3>
26. Odoms-Young, A., Brown, A. G., Agurs-Collins, T., & Glanz, K. (2024). Food insecurity, neighborhood food environment, and health disparities: state of the science, research gaps and opportunities. *The American journal of clinical nutrition*, 119(3), 850-861. <https://doi.org/10.1016/j.ajcnut.2023.12.019>
27. Sanni, S. M. (2025). Nutrition Transition in West Africa: Public Health Challenges, Socioeconomic Impacts, And Regional Policy Interventions. *Center of Medicine*, 1(1). <https://doi.org/10.65591/g5pqqe60>
28. Maziya-Dixon, B., Achterbosch, T., Adelekan, D., Adeyemi, O., Ajieroh, V., Akerele, D., ... & Brouwer, I. D. (2021). Food Systems for Healthier Diets in Nigeria.
29. Gender, C. C., & Linkages, N. (2021). Country Profile-Nigeria.
30. Ogbu, C. E., Oparanma, C. O., Ogbu, S. C., Ujah, O. I., Chinenye, N. S., Ogbu, C. P., & Kirby, R. S. (2023). Neighborhood Unsafety, Discrimination, and Food Insecurity among Nigerians Aged 15–49. *International Journal of Environmental Research and Public Health*, 20(17), 6624. <https://doi.org/10.3390/ijerph20176624>
31. Ahmad, U., Yakubu, N., Joseph, G., Jibril, M. M., & Kura, A. U. (2025). Determinants of obesity and overweight among school-aged children in Bauchi, Nigeria: A mixed-methods study. *medRxiv*, 2025-08. <https://doi.org/10.1101/2025.08.28.25334654>
32. Maina Aboyo, H. (2024). Exploring the Nexus between Food Security and Nutrition in Low-And Middle-Income Countries. *Research Invention Journal of Current Research in Humanities and Social Sciences*, 3(2), 101-104.
33. Mapis, G. (2020). The dietary decision-making process of women in Nigeria (Doctoral dissertation, Walden University).
34. Oparah, O. S., Ezeh, F. E., Olatunji, G. I., & Ajayi, O. O. (2025). Nutrition Literacy Conceptual Framework for Addressing Knowledge Gaps in Low-and Middle-Income Communities.
35. Ilo, J., Kayode, O., Jacob, T., Oduntan, B., & Lawal, R. (2025). Addressing malnutrition in Nigeria: a narrative review of causes, impacts, and pathways to nutritional resilience. *Journal of Research in Applied and Basic Medical Sciences*, 11(2), 163-175.
36. Aremu, S.O., Akute, B., Aremu, D.O. et al. Dietary strategies for preventing and managing obesity through evidence-based nutritional interventions. *Discov Public Health* 22, 424 (2025). <https://doi.org/10.1186/s12982-025-00818-w>
37. Goh EV, Sobratee-Fajurally N, Allegretti A, Sardeshpande M, Mustafa M, Azam-Ali SH, Omari R, Schott J, Chimonyo VGP, Weible D, Mutalemwa G, Mabhaudhi T and Massawe F (2024) Transforming food environments: a global lens on challenges and opportunities for achieving healthy and sustainable diets for all. *Front. Sustain. Food Syst.* 8:1366878. <https://doi.org/10.3389/fsufs.2024.1366878>
38. Wang, W., Mensah, I.A., Atingabili, S. et al. Obesity Kuznets Curve conjecture assessment in African economies: conditioning effects of urbanization, food, and trade using gender-based regional analysis. *Global Health* 21, 26 (2025). <https://doi.org/10.1186/s12992-025-01121-8>
39. Oyagbohun, A. V. (2025). Experience of Food Insecurity and Cultural Foodways: A Case Study with Newcomer Mothers from Nigeria Living in Urban Nova Scotia (Doctoral dissertation, Mount Saint Vincent University).

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.