DOI: https://doi.org/10.68064/jshe.2025.tjx98swu

Promoting Dietary Diversity amongst Families in a Recessed Economy: A Nigeria Experience

Nnaemeka. A. Ugwuanyi, Okoro J. Oluchi, Emeghebo. M. Udochukwu & Kaosolu. D. Iloanya

Abstract

This study explores sustainable strategies for promoting dietary diversity among families in a recessed economy, using Nigeria as a case study. Economic recessions, characterized by declining economic growth, rising unemployment, reduced household income, and persistent inflation, significantly impact food security by limiting food availability, accessibility, utilization, and stability. Consequently, households often prioritize the consumption of inexpensive staple foods that provide satiety rather than nutritionally adequate meals, a coping strategy that exacerbates micronutrient deficiencies, undernutrition, chronic diseases, and mortality rates. Using a systematic review approach, secondary data were gathered from peer-reviewed journals, books, and reputable databases such as Google Scholar, PubMed, and Bing AI. The study was anchored on Maslow's Hierarchy of Needs, which emphasizes the primacy of physiological needs, and examined key concepts including the economic recession in Nigeria, its impact on food security, the meaning and significance of dietary diversity, and the role of dietary diversity indicators (DDIs) in assessing household nutritional status. It further investigated barriers such as high food prices, limited nutrition knowledge, inadequate agricultural support, gender inequalities, and weak policy implementation. Findings indicate that economic instability severely restricts dietary choices, leading to monotonous diets dominated by cereals and tubers with insufficient intake of fruits, vegetables, legumes, animal-source foods, and fortified products. This nutritional gap contributes to a double burden of malnutrition, where undernutrition and obesity coexist within the same population. The study highlights the importance of targeted social protection policies, nutrition-sensitive agriculture that integrates biofortification and crop diversification, community-based nutrition education programs, and improved food affordability through subsidies and innovative food distribution systems to enhance dietary diversity. Strengthening women's empowerment and promoting local food processing and preservation techniques were also identified as sustainable approaches to improve diet quality. Based on these insights, the study concludes with recommendations that nutrition educators should collaborate with professionals such as home economists, dietitians, and other food experts to promote public awareness of dietary diversity and healthy eating. It further recommends that government strengthen agriculture by supporting smallholder farmers and engaging unemployed youths in nutrition-sensitive farming to enhance food security and improve nutrition outcomes.

Key words: Dietary diversity, Dietary diversity scores, Malnutrition, Undernutrition.

Introduction.

A robust global economic recovery seems improbable in light of the ongoing inflation, rising interest rates, and heightened uncertainty. The World Economic Situation and Prospects (2023) report warns that if the COVID-19 pandemic's aftermath, the increasing consequences of climate change, and

macroeconomic structural issues are not addressed, the world economy could experience a prolonged period of poor growth. While it is true that the United Nations (2023) forecast a modest acceleration of global economic growth for 2023, with the US expected to see a minor increase due to strong household spending and the European Union projected to record a 0.9% gain, the reality has, thus far, unfolded in the opposite direction. The International Labor Organization (2024) determined that the rate of youth unemployment is 15.58% and the global inflation rate is 5.8%, which underscores the divergence from the United Nations' 2023 forecast. According to the ILO (2024), global unemployment is expected to rise slightly from 5.1% in 2023 to 5.2% in 2024, representing an increase of about 2 million people without jobs. At the same time, the United Nations (2023) projects that global inflation will decline from 5.7% in 2023 to 3.9% in 2024, although price pressures remain high in both developed and developing economies.

The global economy has been destabilized by successive crises. The COVID-19 pandemic forced widespread business closures and severely disrupted supply chains, while Russia's invasion of Ukraine intensified fears of a prolonged recession. More recently, beginning in late 2023, Houthi militia attacks on commercial vessels in the Red Sea severely restricted access to the Suez Canal, reducing traffic by more than 42 percent (ILO, 2024). As a result, many ships were rerouted around the Cape of Good Hope, adding considerable delays, increasing transport costs, and driving up insurance premiums (United Nations Conference on Trade and Development (UNCTAD) (2024). Collectively, these shocks have amplified existing weaknesses in global trade and supply systems, fueling persistent inflation and further limiting household access to diverse and nutritious foods. Based on these facts, the study is organized around the following key concepts: the economic recession in Nigeria, its impacts on food security, the meaning and importance of dietary diversity for individuals and families, methods of measuring dietary diversity, dietary diversity indicators (DDIs), barriers to dietary diversity among Nigerian households, and sustainable strategies for promoting dietary diversity.

Economic recession in Nigeria

According to IMF, (2022), a recession is when the economy stops growing and goes into reverse. An economic recession, according to the National Bureau of Economic Research (NBER) (2021), indicated that a recession is a severe economic downturn, characterized by a two-quarter or longer decline in GDP, employment, industrial production, and consumer expenditure. Recessions reverse themselves when interest rates decrease due to decreased loan demand, enabling easier borrowing and increased spending, leading to economic expansion in consumers and businesses (IMF,2022).

Consequently, Nigeria is experiencing an economic recession. Data from the National Bureau of Statistics (NBS) (2023) show unemployment rates of 2.5% in rural and 5.9% in urban areas. Although the Central Bank of Nigeria's policy targets 21.4% inflation and projects a decline by 2024, food costs remain high. Thus, households struggle to secure meals for satiety rather than nutrition, leading to poor dietary diversity, malnutrition, and chronic diseases.

Impact of Economic Recession on Food security in Nigeria.

Food security is a complex and multifaceted term that includes food's consistent availability, accessibility,

utilization and stability. It is widely evaluated at the local, national, and international levels and is an essential part of global development (FAO, 2018). Food accessibility depends on importation or domestic availability, influenced by trade rules, infrastructure, climatic conditions, and farming techniques. In addition to meeting nutritional demands, access to food also requires clean water, sanitation, medical care, and education. (United Nations, 2015).

According to the World Food Program (WFP, 2024), Nigeria faces worsening food insecurity, with 2.9 million people affected, projected to reach 26.5 million by 2024. In the northeast, 4.4 million lack food access and 2.2 million are displaced, driven by inflation, conflict, and climate change. Hunger and malnutrition contribute to disorders, mental health issues, and hospitalizations (Beyene, 2023). Ogundare (2015) noted policies for equitable food access and agriculture, but they remain unimplemented, and food security is still viewed mainly as availability, neglecting dietary diversity and leaving many nutritionally deficient.

Dietary Diversity (DD)

"Eat a variety of foods" or dietary diversity is a long-standing public health recommendation in the United States and around the world. This recommendation was first made in the early 20th century in response due to the prevalence of nutrient inadequacies. The quantity of various food groups or items consumed over a specific time period is known as dietary diversity (DD) (FAO, 2014). It is a qualitative indicator of food intake that represents access to a range of foods for households or individuals and serves as a stand-in for the adequacy of nutrients in a person's or household's diet (Mason & Lang, 2017). In order to achieve nutritional needs, a varied assortment of foods and beverages across the recommended food groups is thought to be necessary. Thus, it is essential for meeting nutrient requirements and promoting optimal health (Bellows,2019).

Importance of Dietary Diversity

Nutritionists have long understood dietary diversity (DD) to be a crucial component of high-quality diets. As an indicator of nutritional quality, it is internationally recognized and used to gauge dietary sufficiency (Verger et al., 2021). FAO (2014) confirmed that poor dietary factors increase malnutrition and chronic disease risks, while standards emphasize improving DD to meet energy and nutrient needs. DD also serves as a key indicator for sustainable diets and UN SDGs such as Zero Hunger, Good Health, and Responsible Consumption (Martin-Prével et al., 2015). Luckett et al. (2015) suggested enhancing DD to combat micronutrient deficiency and food insecurity, noting its link to agrobiodiversity and household food security. Evidence further shows DD improves nutrition, supports healthy weight, enhances hemoglobin levels, birth weight, and child growth (FAO, 2014), while reducing chronic diseases, obesity, and hidden hunger (Arimond & Ruel, 2014; De Oliveira et al., 2018).

The Food and Agriculture Organization (FAO) emphasizes the promotion of dietary diversity as a key strategy to combat micronutrient deficiencies (FAO, 2019). Dietary diversity is crucial for achieving SDG 2, aiming to end hunger, improve nutrition, and promote sustainable agriculture, and is recommended by the EAT-Lancet Commission for healthy diets (Willet et al,2019). DD is not currently utilized as a measure of diet quality, despite the fact that it is well acknowledged as an essential component of healthful foods (Luckett al, 2015). Since different food

groups provide essential macro- and micronutrients that ensure dietary adequacy, individuals should be encouraged to combine a variety of foods in their diets to prevent disorders associated with nutrient deficiencies.

Measuring Dietary Diversity

Dietary diversity score measures dietary diversity by counting food groups consumed over a reference period, often ranging from 1-3 days to 7-15 days, and serves as an indicator of nutritional adequacy. There are different models of food groups apart from the basic model (fruits, vegetables, grains, proteins foods, dairy and oils and fats) that one can adopt to assess the dietary diversity of any of the Dietary Diversity Indicators (DDI). FAO, (2006) showed a model made up of nine (9) food groups which includes starchy staples (cereals, roots and tubers); Vitamin A rich fruits and vegetables; other fruits; other vegetables; legumes and nuts; fats and oils; meat, poultry and fish; milk and milk products and egg. Similarly, Kennedy,Pedro,Nantel, Seghieri and Brouwer, (2007) showed an eleven (11) food group model which comprise the cereals, roots and tubers; vitamin A rich fruits and vegetables; other fruits; other vegetables; legumes, pulses and nuts; Oils and fats; dairy; meat, poultry and fishes; dairy products; egg and others (sweet, chips, soda among others). There is a twelve (12) food group model which consists of the cereals; roots and tubers; vegetables; fruits; meats/ poultry/offal; eggs; fish/sea foods; pulses/legumes/nuts; milk/milk products; oils/fats; sugar/honey and miscellaneous.

The use of FAO, (2014) 9-food group model is ideal because it remains the most widely recognized and standardized tool for assessing dietary diversity, particularly in large-scale surveys and low- and middle-income country like Nigeria. Nevertheless, in urban or transitioning food environments where consumption of processed foods is common, the 11-food group model or the more comprehensive 12-food group model may provide a more accurate reflection of dietary patterns.

According to FAO, (2014), dietary diversity score (DDS) is classified as high or low based on the specific scoring system and study context. A high DDS indicates a diverse diet, contributing to better nutritional outcomes and reduced nutrient deficiencies. A low DDS suggests a limited range of food groups, potentially leading to deficiencies or imbalances. A score of 5 or higher is considered adequate or high while a score below 5 may be considered "low" (Ngunyen et al,2019).

Dietary Diversity Indicators (DDIs)

Dietary diversity indicators measure individual aspects of dietary diversity, assessing food variety and types over time. They are crucial in nutritional research, public health, and policy planning to understand diet quality and potential deficiencies These include the following:

Firstly, the Minimum Dietary Diversity for Women (MDD-W) which is a population-level indicator for women aged 15-49, based on 10 food groups. It measures dietary diversity in reproductive-age women. Participants consume items from each food group, ensuring equal weight. The indicator is calculated by dividing the percentage of women who ingested items from each food group the day before (FAO & FHI,2016). Secondly, the Household Dietary Diversity Scores (HDDS) measure a household's socioeconomic status and food availability. It evaluates the variety of meals consumed, including roots, vegetables, fruits, meat, eggs, fish, pulses, legumes, nuts, milk, oil, fats, and sugar/ honey. The score ranges from 0 to 12, and

the average household dietary diversity score can be calculated by dividing the sum of HDDS by the total number of households surveyed.

Thirdly is the Individual Dietary Diversity Score (IDDS) which measures an individual's dietary diversity by considering food groups consumed over time. It reflects nutrient adequacy and is valid for various age groups. IDDS food groups include cereals, grains, vegetables, fruits, dairy, protein sources, fats, and oil. Validation studies are ongoing for various countries as there is not yet a consensus on which food groups to include for different age/sex groups. The score is determined just like the HDDS. Fourthly is the Infant and Young Child Feeding (IYCF) Dietary Diversity Score which is a measure of dietary diversity in infant and young child feeding practices. It includes food groups like breast milk, grains, legumes, dairy products, flesh food, and vitamin A-rich fruits and vegetables. The score is calculated based on the_number of children 6-23 months of age who received foods from 5 or more food groups yesterday during the day or night divided by the number of children 6-23months of age for whom data on breastfeeding and diet were calculated(WHO/UNICEF, 2021) . Further indicators include the Food Variety Score and Nutrient Adequacy Ratio which measure the variety of foods consumed, based on dietary diversity, and evaluate the sufficiency of nutritional intake by comparing actual nutrient consumption with recommended intake.

Impediments to the Practice of Dietary Diversity Amongst Families in Nigeria and Sustainable Measures

Empirical evidence has revealed low dietary diversity among families in Nigeria (Ayenew, Biadgilign, & Schickramm, 2020). Several factors hinder the adoption of diverse diets, yet each of these impediments can be mitigated through sustainable interventions. These include:

1. Low Socio-economic Status: Poverty, youth unemployment, and agricultural neglect reduce access to diverse foods, contributing to malnutrition and chronic diseases (Georgescu, Pop, Jordan, & Dehelean, 2022). Promoting nutrition-sensitive farming, home gardens (Fanzo, 2018), and providing subsidies and farmer incentives (Ligia et al., 2021) can enhance access to affordable, nutrient-rich diets.
2. Cultural Practices and Food Preferences: Cultural customs and personal preferences strongly shape dietary decisions, sometimes restricting the variety of foods consumed (Jones & Brown, 2020). Community-based education programs, cookery demonstration and public food demonstrations can help reshape preferences by emphasizing the cultural acceptability of diverse food groups while preserving traditional values (Fanzo, 2018).
3. Limited Food Resources for Children: In some regions, inadequate farming practices and parental neglect reduce children's access to diverse foods (Janda.etal.,2022). School-based gardening programs can promote exposure to diverse foods early in life, while engaging parents in child-centered nutrition education can improve household practices (Criste et al.,2020).
4. Educational Level: Individuals with higher education levels generally practice greater dietary diversity due to better nutritional knowledge, while those with only basic education often lack awareness of balanced diets (Williams & Smith, 2016). Incorporating food and nutrition

into school curricula and enhancing sustainability literacy among food professionals ensures that knowledge is transferred across society (Pettinger, 2018).

5. Household Income: Increased household income is positively associated with dietary diversity, as wealthier families can afford a wider range of foods (Williams & Smith, 2016). Encouraging community-supported agriculture and local food markets can provide affordable access to fresh produce, reducing reliance on costly imported foods (Alyssa et al., 2020).
6. High Market Costs: Rising food prices force households to shift from nutritious to less healthy options, thereby reducing dietary diversity (Johnson & Davis, 2019). Introducing subsidies for healthy foods, enforcing taxes on ultra-processed products, and promoting sustainable local production can mitigate the burden of high food costs (Ligia et al., 2021).
7. Seasonal Variation and Food Availability: Poor storage facilities, perishability of foods, and inadequate preservation skills reduce access to fruits and vegetables during off-seasons (Johnson & Davis, 2019). Educating the public on preservation techniques (drying, fermenting, improved storage) and investing in storage infrastructure can extend the availability of perishable foods year-round (Alberdi & Begiristain-Zubillaga, 2021).
8. Urbanization and Changing Dietary Patterns: Urban lifestyles often promote reliance on processed foods and contribute to food waste, both of which reduce dietary diversity (Johnson & Davis, 2019). Policies that regulate unhealthy food marketing, promote sustainable seafood and plant-based proteins, and encourage urban gardens can counter the dominance of processed diets (Alyssa et al., 2020; Carlsson, Callaghan, & Broman, 2019).
9. Food Insecurity: Insecure food environments limit access to varied diets and exacerbate nutritional challenges (Ukonu, Wallace, & Lowe, 2023). Nutrition policy should prioritize input from food and nutrition experts and support local food systems that reduce reliance on imports while improving resilience (Carlsson, Callaghan, & Broman, 2019).
10. Family Size and Gender Dynamics: Larger households struggle to maintain dietary diversity, and men are less likely than women to eat diversely (Endalifer, Andargie, & Mohammed, 2021). To address this, nutrition programs should engage both genders in decision-making while also promoting family planning and fair food distribution (Alberdi & Begiristain-Zubillaga, 2021).

Improving dietary diversity among Nigerian families requires integrated strategies that address socioeconomic factors, cultural practices, nutrition education, and sustainable agriculture. Such measures support key United Nations Sustainable Development Goals, including SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being), and SDG 12 (Responsible Consumption and Production). By tackling barriers to diverse diets, these interventions enhance food security, reduce malnutrition and

diet-related diseases, and promote sustainable food systems, thereby advancing both national and global nutrition and health goals.

Conclusion and Recommendations

Overall, this review highlights how economic recession in Nigeria undermines food security and shifts household focus from nutrition to mere satiety. Consistent with Maslow's hierarchy of needs, households are prioritizing basic survival by consuming low-cost, energy-dense foods at the expense of dietary diversity and long-term health. This underscores the urgency for policies that reduce the cost of nutrient-rich foods and make diverse diets more accessible. Therefore, strengthening nutrition education, promoting nutrition-sensitive agriculture, and designing policies that subsidize diverse food groups are essential for ensuring that Nigerian families can fulfill their most fundamental physiological needs while safeguarding long-term health and well-being.

Based on the findings, the following recommendations were made:

1. Nutrition educators should work with experts such as home economists, dietitians, and other food professionals to raise public awareness about dietary diversity and healthy eating.
2. Government should strengthen agriculture by supporting smallholder farmers and encouraging unemployed youths to take part in nutrition-sensitive farming.
3. Curriculum planners should include dietary diversity in school lessons, while government and NGOs should promote it through media campaigns and public awareness programs.
4. Home economists should promote home gardens, local food markets, and food preservation skills to make diverse and affordable foods available all year round.

References

Alberdi, G., & Begiristain-Zubillaga, M. (2021). The promotion of sustainable diets in the healthcare system and implications for health professionals: A scoping review. *Nutrients, 13*(3), 747. https://doi.org/10.3390/nu13030747

Alyssa.S, Selina. A,Teresa.W,Virgil.D &Selena, (2020). Dietary diversity. *The sustainable diet series*.

Beyene, S. D. (2023). The impact of food insecurity on health outcomes: Empirical evidence from Sub-Saharan African countries. *BMC Public Health, 23*, 338. https://doi.org/10.1186/s12889-023-15244-3

Criste, A., Urcan, A. C., Bunea, A., Pripon Furtuna, F. R., Olah, N. K., Madden, R. H., & Corcionivoschi, N. (2020). Phytochemical composition, antioxidant, and antibacterial properties of berries and leaves from four Romanian sea buckthorn (*Hippophae rhamnoides* L.) cultivars. *Molecules, 25*(5), 1170. https://doi.org/10.3390/molecules25051170

De Oliveira Otto, M. C., Anderson, C. A., Dearborn, J. L., Ferranti, E. P., Mozaffarian, D., Rao, G., Wylie-Rosett, J., & Lichtenstein, A. H. (2018). Dietary diversity: Implications for obesity prevention in adult populations: A science advisory from the American Heart Association. *Circulation, 138*(11), e160–e168. https://doi.org/10.1161/CIR.0000000000000595

Endalifer, M. L., Andargie, G., & Mohammed, B. (2021). Factors

associated with dietary diversity among adolescents in Woldia, Northeast Ethiopia. *BMC Nutrition, 7*, 27. https://doi.org/10.1186/s40795-021-00430-6

Fanzo, J. (2018). Global nutrition report: Shining a light to spur action on nutrition. Development Initiatives. https://globalnutritionreport.org/reports

Georgescu, C., Pop, R., Jordan, C., & Dehelean, C. A. (2022). Geographic variability of berry phytochemicals with antioxidant and antimicrobial activities. *Antioxidants, 11*(9), 1710. https://doi.org/10.3390/antiox11091710

International Labor Organization (ILO). (2024). *World employment and social outlook: Trends 2024*. Geneva: ILO. https://www.ilo.org/global/research/global-reports/weso/2024

International Monetary Fund. (2022). *World economic outlook: October 2022.* International Monetary Fund. https://www.imf.org/en/Publications/WEO/Issues/2022/10/11/world-economic-outlook-october-2022

Janda, K. M., Ranjit, N., Salvo, D., Hoelscher, D. M., Nielsen, A., Casnovsky, J., & van den Berg, A. (2022). Examining geographic food access, food insecurity, and urbanicity among diverse, low-income participants in Austin, Texas. *International Journal of Environmental Research and Public Health, 19*(9), Article 5108. https://doi.org/10.3390/ijerph19095108 (MDPI)

Jones, B., & Brown, C. (2020). Cultural influences on dietary diversity: A qualitative study. *Food, Culture & Society, 23*(3), 289–305. https://doi.org/10.1080/15528014.2020.1714063

Ligia IRA., Shilpa VCA., Shiva BEA., Frongillo, A., Pepijn, S., Sigrid, W., Helen, W., Holdsworth, M., Laarf, A., Tuan, N., Turner, C., Wellard, K., & Christine, E. B. (2021). Actions in global nutrition initiatives to promote sustainable healthy diets. *Global Food Security*. https://www.elsevier.com/locate/gfs

National Bureau of Economic Research. (2021). *U.S. business cycle expansions and contractions.* https://www.nber.org/research/data/us-business-cycle-expansions-and-contractions

National Bureau of Statistics. (2023). *Nigeria unemployment rate.* Within Nigeria. https://withinnigeria.com/news/2023/12/21/nigeria-unemployment-rate/

Nguyen, P. H., Martin-Prével, Y., Moursi, M., Tran, L. M., Menon, P., Ruel, M. T., & Arimond, M. (2019). Assessing dietary diversity in pregnant women: Relative validity of the list-based and open recall methods. *Current Developments in Nutrition, 3*(S1), nzz134. https://doi.org/10.1093/cdn/nzz134

United Nations. (2023). *World economic situation and prospects 2023.* United Nations. https://desapublications.un.org/publications/world-economic-situation-and-prospects-2023

Ukonu, I. C., Wallace, C. A., & Lowe, N. M. (2023). Household food security and dietary diversity in south-eastern Nigeria. *Maternal & Child Nutrition, 19*(1), e13599. https://doi.org/10.1111/mcn.13599

United Nations (2023). *World economic situation and prospects 2023.* New York: United Nations. https://desapublications.un.org/publications/world-economic-situation-and-prospects-2023

United Nations Conference on Trade and

Development (UNCTAD). (2024). *Navigating stormy seas: Impacts of Red Sea crisis on global trade*. Geneva: UNCTAD. https://unctad.org

Verger, E. O., Le Port, A., Borderon, A., Bourbon, G., Moursi, M., Savy, M., Mariotti, F., & Martin-Prevel, Y. (2021). Dietary diversity indicators and their associations with dietary adequacy and health outcomes: A systematic scoping review. *Advances in Nutrition, 12*(5), 1659–1672. https://doi.org/10.1093/advances/nmab009

World Food Program (WFP). (2024). *Hunger Map LIVE: Nigeria*. Rome: WFP. https://hungermap.wfp.org

World Health Organization (WHO) & UNICEF. (2021). *Indicators for assessing infant and young child feeding practices: Definitions and measurement methods*. Geneva: WHO. https://www.who.int/publications/i/item/9789240018389