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Unlocking Nutritional Frontiers: Analyzing Household Diet Quality and Health Outcomes in Nigeria

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Abstract

Diet quality is a key determinant of malnutrition and a major contributor to Non-Communicable Diseases (NCDs). This study examines the impact of household diet quality on health outcomes in Nigeria, using data from the 2018/2019 General Household Survey. Descriptive statistics, the Global Dietary Requirement (GDR), and a Probit model were employed to assess diet composition and adherence to dietary guidelines. The results reveal that many Nigerian households consume foods that increase the risk of NCDs, particularly deep-fried foods, fast food, instant noodles, and unprocessed red meat. The most commonly consumed NCD-protective foods are legumes, vitamin A-rich orange vegetables, and other vegetables, while dark leafy greens, citrus, and vitamin A-dense fruits are consumed the least. The average GDR score is 10.5, indicating that households in Nigeria are about halfway toward meeting WHO dietary recommendations. This score reflects a mixed dietary pattern, with households consuming both NCD-risk and NCD-protective foods, though not in an optimal balance. The study finds that improved diet quality, measured by GDR score, reduces the risk of NCDs in adults and lowers stunting prevalence among children under five. These findings highlight the need for policies and interventions to promote healthier dietary choices and reduce disease risks. By fostering a healthier food environment, Nigeria can make meaningful progress toward achieving the Sustainable Development Goals (SDGs) related to health, nutrition, and poverty reduction by 2030.

Keywords

Diet quality, NCDs, stunting, GDR Score, dietary guidelines

JEL Classification

I12, I18, Q18

Introduction

Diet quality is central to global development efforts, particularly in achieving the Sustainable Development Goals (SDGs) related to hunger, poverty, health, and education. However, Nigeria faces significant challenges in meeting these goals by 2030 due to persistent issues of malnutrition and diet-related communicable diseases (Adesina et al., 2021). The country is undergoing a dietary transition, with traditional, nutritious diets increasingly giving way to

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processed and unhealthy food options, particularly in urban areas (de Brauw & Herskowitz, 2021). This shift, along with the rapid expansion of modern food markets, has led to higher consumption of unhealthy foods, contributing to the rise of non-communicable diseases (NCDs).

Nigerian diets are predominantly based on staple foods and animal-sourced proteins, with inadequate intake of pulses, fruits, and vegetables (Ecker et al., 2020). This trend is concerning, as global dietary guidelines—such as those from the WHO and the EAT-Lancet Commission—recommend that a substantial portion of daily caloric intake should come from diverse, plant-based sources. Given the serious health implications of poor diet quality, especially its contribution to the growing prevalence of NCDs, this study examines the adherence of household diets to dietary guidelines and its impact on health outcomes.

Material and Methods
The data employed mainly secondary data sourced from the 2018/2019 General Household Survey Panel (GHS-Panel). Statistical and econometric analytical techniques were employed in the estimation of the study objectives. The Global Dietary Recommendation (GDR) score evaluates how well a diet adheres to WHO (2018) guidelines[2] for healthy eating. It combines two sub-components: NCD-Protect and NCD-Risk. The NCD-Protect score (ranging from 0-9) measures consumption of nine healthy food groups, such as whole grains, legumes, nuts, and vitamin-rich fruits and vegetables, where higher scores indicate better alignment with dietary recommendations. NCD-Risk (also 0-9) assesses consumption of unhealthy food groups like sugary drinks, processed meats, fast foods, and ultra-processed snacks, with higher scores suggesting a greater likelihood of NCD risk. The overall GDR score is calculated by subtracting NCD-Risk from NCD-Protect, with a range of 0-18, where higher scores indicate a more health-protective diet (Herforth et al., 2020). Probit model was employed to assess the effect of diet quality on health outcomes, including prevalence of NCDs in adults and stunting in children under five.

Results and Discussion

Adherence of Household Diets to Food-based Dietary Guidelines in Nigeria
The extent to which household diets in Nigeria adhere to the WHO (2018) dietary recommendations was assessed using the GDR Score, which summarizes two key components: NCD-Risk and NCD-Protect. The NCD-Risk component includes dietary factors that increase the likelihood of developing non-communicable diseases (NCDs). Results from Table 1 reveal that households in Nigeria consume a variety of foods that heighten the risk of NCDs, particularly deep-fried foods (95%), fast food and instant noodles (60%), and unprocessed red meat (54%). Despite these consumption patterns, the NCD-Risk score of 2.9 out of 9 suggests that, overall, the risk posed by dietary factors remains relatively low. However, the high intake of sweets, unprocessed red meat, deep-fried foods, and fast food/instant noodles indicates that NCD risk factors are widespread in household diets.

On the other hand, the most widely consumed NCD-Protect foods are legumes (81.6%), other vegetables (84.4%), and vitamin A-dense orange vegetables (68.7%), while the least consumed are dark leafy vegetables (28.8%), citrus (28.4%), and vitamin A-dense fruits (23%). The NCD-Protect score is about 4.39 which is slightly below average. Overall, the **average GDR score** is approximately **10.5**, suggesting that households in Nigeria are about **halfway** towards meeting the WHO dietary recommendations. This score reflects a mixed dietary pattern where households

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[2] Adherence of households' diets to WHO's recommendations was measured using proxy food groups suggested by GDQP (2021)

are consuming both NCD-risk foods (e.g., deep-fried items, red meat) and NCD-protect foods (e.g., legumes, vegetables), but **not at an optimal balance**. The situation emphasizes the need for ongoing efforts to promote healthier dietary practices and limit less healthy food consumption to improve public health outcomes and reduce the risk of non-communicable diseases.

Table 1: Assessing Household Diet Adherence to WHO Dietary Guideline

Components of NCD-Risk	Percent	Components of NCD-Protect	Percent
SSBs	14.68	Whole grains	41.67
Baked/grain-based sweets	20.84	Legumes	81.59
Other sweets	35.03	Nuts and seeds	42.46
Processed meat	1.27	Vit. A-dense orange vegetables	68.67
Unprocessed red meat	54.14	Dark green leafy vegetables	28.75
Deep fried food	95.00	Other vegetables	84.39
Fast food & Instant noodles	59.45	Vitamin A-dense fruits	23.00
Packaged ultra-processed salty snacks	5.34	Citrus	28.38
GDR-Limit	2.87±1.6	**GDR-Healthy**	4.39±1.7
GDR Score	10.52±1.9		

Effect of Household Diet Quality on Health outcomes

Household diet quality plays a crucial role in determining health outcomes, as poor diets increase the risk of malnutrition and NCDs. Results in Table 2 (Model 1) shows that a one-point increase in the GDR-Score reduces NCD incidence by 98.4%, aligning with Morze et al. (2020), which links poor diet quality to increased NCD risk. Adequate diets provide essential nutrients that enhance immune function, reducing chronic disease risk. The interaction between GDR Score and household head age shows diet quality's impact on NCDs varies with age, potentially due to shifting nutritional needs. In Model 2, the effect of GDR Score on NCDs is stronger, suggesting additional factors influence NCD risk when diet quality is considered. For stunting, a one-point increase in GDR score reduces the likelihood of stunting by 24.3%, highlighting the importance of improved diets in child nutrition. This supports Krasevec et al. (2018), who found children not consuming recommended food groups were 1.35 times more likely to be stunted.

Table 2: The Effect of Household Diet Quality on the Incidence of Non communicable diseases[3]

Dependent variable Presence or absence of NCDs	NCDs		Stunting
	Model 1	Model 2	
GDRScore	-0.984*	-3.433**	-0.243*
	(0.543)	(1.680)	(0.128)
GDRScore*Age of household head	0.022***	0.068**	
	(0.008)	(0.029)	
Sex of Household head	-0.014 (0.233)	1.392**	
		(0.707)	
Age of child			-0.428**
			(0.212)
Constant	-1.963	-4.806***	5.413***
	(0.274)	1.935)	(1.780

**Figures in parentheses are standard errors

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[3] Full details on control variables and diagnostic tests are available from the author upon request

Conclusions and Outlook

This study highlights the critical role of household diet quality in influencing health outcomes in Nigeria, particularly concerning non-communicable diseases (NCDs) and child stunting. The findings indicate that while households have a moderate adherence to dietary guidelines, significant gaps persist, particularly in unhealthy food consumption. Improving diet quality can greatly enhance public health, as evidenced by a 98.4% reduction in NCD incidence and a 24.3% decrease in stunting likelihood with a one-point increase in GDR score. These results underscore the urgent need for policymakers to prioritize nutrition-sensitive interventions that promote healthier dietary practices and reduce disease risks. By fostering a healthier food environment, Nigeria can make meaningful progress toward achieving the Sustainable Development Goals (SDGs) related to health, nutrition and poverty reduction by 2030.

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