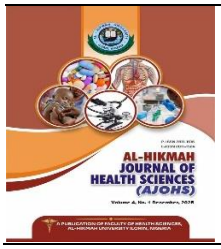
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Original Article

Association Between Household Food Insecurity and Childhood Malnutrition Among Under-Five Children in Ilorin West Local Government Area, Kwara State, Nigeria

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ABSTRACT

Background: Childhood malnutrition remains a major public health concern in Nigeria and may be influenced by household food insecurity.

Objective: To assess household food insecurity, child nutritional status and associated factors among under-five children in Ilorin West Local Government Area, Kwara State.

Methods: A cross-sectional analytical study was conducted among 400 mother-child pairs selected through multistage sampling. Household food insecurity was assessed with the Household Food Insecurity Access Scale, and nutritional status was recorded using the study's predominant WHO-based classification.

Results: Only 9.0% of households were food secure; 2.0% were mildly, 43.5% moderately and 45.5% severely food insecure. Overall, 52.0% of children were classified as normal, 31.5% predominantly underweight, 10.5% predominantly stunted and 6.0% predominantly wasted. Any undernutrition occurred in 50.0% of food-insecure households versus 27.8% of food-secure households (χ^2 (1) = 5.62, p = .018; OR = 2.60, 95% CI 1.22-5.55).

Conclusion: Household food insecurity was common and significantly associated with childhood undernutrition. Integrated food-security, maternal-education, growth-monitoring and child-health interventions are needed.

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Introduction

Food insecurity and malnutrition remain closely linked public health problems. At household level, limited access to adequate and nutritious food may reduce dietary quality and increase the risk of undernutrition among children (Burman *et al.*, 2022; Patriota *et al.*, 2024).

Recent global estimates show that childhood undernutrition remains substantial. In 2024, approximately 150.2 million children under five years were stunted and 42.8 million were wasted worldwide

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(UNICEF *et al.,* 2025). Nigeria also carries a considerable burden. The 2024 Nigeria Demographic and Health Survey reported that 40% of children under five were stunted, 8% were wasted and 27% were underweight (Federal Ministry of Health and Social Welfare of Nigeria *et al.,* 2025). Childhood undernutrition can adversely affect physical growth, cognitive development, susceptibility to illness and long-term productivity.

In Nigeria, food insecurity remains an acute problem affecting millions of households' access to nutritious diets, and UNICEF estimates that 11 million Nigerian children under five are unable to meet minimum dietary requirements, with children from poorer households disproportionately affected (UNICEF, 2024).

The aim of this study was to assess the association between household food insecurity and childhood malnutrition among under-five children in Ilorin West LGA, Kwara State, Nigeria. The specific objectives were to: (i) determine the prevalence of household food insecurity among households with under-five children; (ii) assess the nutritional status of under-five children; (iii) assess caregivers' knowledge and child-feeding practices in food-secure and food-insecure households; (iv) examine the association between household food insecurity and childhood malnutrition; and (v) examine the association between selected socio-demographic characteristics and childhood malnutrition.

Materials and Methods

A descriptive cross-sectional analytical study was conducted among 400 mothers or primary caregivers of children aged 6–59 months in Ilorin West LGA, Kwara State. Participants had lived in the area for at least six months and gave informed consent, while children with severe illness or conditions affecting growth were excluded. The sample size was determined using the Cochran formula and adjusted for non-response. A multistage sampling technique was used: six wards were selected by balloting, two communities were randomly selected from each ward, samples were proportionately allocated, and eligible households were selected systematically. Data were collected with a structured interviewer-administered questionnaire covering socio-demographic characteristics, feeding practices, nutritional status, household food security, and caregiver knowledge.

Household food insecurity was assessed using the nine-item HFIAS and classified into food secure, mild, moderate, or severe food insecurity using the HFIAP algorithm (Coates *et al.*, 2007). Anthropometric measurements included weight, height/length, and mid-upper arm circumference. Children were classified by predominant nutritional status as normal, underweight, wasted, or stunted based on WHO Child Growth Standards (WHO, 2006). The questionnaire was adapted from standard HFIAS and WHO tools, reviewed by experts, pre-tested, and showed acceptable reliability (Cronbach's $\alpha = 0.70$). Caregiver knowledge and feeding practices were assessed with an 8-item four-point Likert scale. Data were analysed in SPSS version 25 using descriptive statistics, Pearson chi-square, odds ratios with 95% confidence intervals, and binary logistic regression. Statistical significance was set at $p < 0.05$. Ethical approval and community permission were obtained, and confidentiality was maintained throughout.

Results

Socio-demographic characteristics

A total of 400 mother–child pairs were included. Children aged 48–59 months formed the largest age group (30.0%), and 55.5% were female. Half of mothers/caregivers were aged 30–39 years (50.5%), 67.0% had secondary education and 91.0% were self-employed.

Table 1: Socio-demographic Characteristics of Respondents (n = 400)

Characteristic	Category: n (%)
Age of child (months)	0–11: 34 (8.5); 12–23: 58 (14.5); 24–35: 98 (24.5); 36–47: 90 (22.5); 48–59: 120 (30.0)
Sex of child	Male: 178 (44.5); Female: 222 (55.5)
Age of mother/caregiver	20–29: 174 (43.5); 30–39: 202 (50.5); 40–49: 24 (6.0)
Education	None: 2 (0.5); Primary: 52 (13.0); Secondary: 268 (67.0); Tertiary: 78 (19.5)
Employment	Self-employed: 364 (91.0); Unemployed: 16 (4.0); Civil servant: 20 (5.0)
Monthly household income (₦)	<50,000: 38 (9.5); 50,000–100,000: 332 (83.0); 100,001–200,000: 28 (7.0); >200,000: 2 (0.5)
Household size	<5: 158 (39.5); 5–8: 226 (56.5); >9: 16 (4.0)

Household food insecurity was common among respondents. Only 9.0% of households were food secure, while 2.0% were mildly food insecure, 43.5% were moderately food insecure, and 45.5% were severely food insecure. The observed HFIAS scores ranged from 0 to 19, with a mean of 7.71 ± 4.19.

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Table 2: Predominant Nutritional Status of Under-five Children (n = 400)

Predominant nutritional status	n (%)
Normal	208 (52.0)
Underweight	126 (31.5)
Stunted	42 (10.5)
Wasted	24 (6.0)

Note. The source dataset retained one predominant nutritional classification per child; independent overlapping HAZ, WAZ and WHZ prevalence could therefore not be reconstructed.

Table 3: Caregivers' Knowledge and Child-Feeding Practices (n = 400)

Item / measure	Food secure (n=36)	Food insecure (n=364)	p-value
Exclusive breastfeeding for first 6 months	36 (100.0)	364 (100.0)	-
Complementary foods introduced at 6 months	36 (100.0)	362 (99.5)	1.000
≥5 food groups daily for children 6-23 months	36 (100.0)	344 (94.5)	.239
Irregular feeding can negatively affect child health	36 (100.0)	364 (100.0)	-
More fluids/food should be given during illness	36 (100.0)	364 (100.0)	-
Handwashing before feeding prevents infection/malnutrition	36 (100.0)	364 (100.0)	-
Balanced meals possible from local foods despite hardship	36 (100.0)	306 (84.1)	.010
Child receives recommended number of meals daily	36 (100.0)	322 (88.5)	.022

Table 4: Association Between Household Food Insecurity and Childhood Undernutrition (n = 400)

Household food-security status	No undernutrition n (%)	Any undernutrition n (%)	Total
Food secure	26 (72.2)	10 (27.8)	36
Mildly food insecure	6 (75.0)	2 (25.0)	8
Moderately food insecure	94 (54.0)	80 (46.0)	174
Severely food insecure	82 (45.1)	100 (54.9)	182
Total	208 (52.0)	192 (48.0)	400

$\chi^2(1) = 5.62$, $p = .018$; OR = 2.60, 95% CI: 1.22–5.55. Note. For inferential analysis, mild, moderate and severe food insecurity were combined as "food insecure" and compared with food-secure households.

Table 5: Binary Logistic Regression of Predictors of Childhood Undernutrition (n = 400)

Predictor / comparison	Adjusted OR	95% CI	p-value
Child age 36-59 vs 0-35 months	1.81	1.15-2.86	.011
Female vs male	1.58	1.03-2.41	.034
Mother age ≥30 vs 20-29 years	0.53	0.32-0.90	.017
Secondary/tertiary vs none/primary education	0.25	0.13-0.49	<.001
Unemployed vs employed	1.69	0.55-5.19	.357
Household income >₦100,000 vs ≤₦100,000	0.53	0.23-1.22	.133
Household size ≥5 vs <5	0.71	0.42-1.22	.216
≥4 vs <4 children in household	1.35	0.78-2.33	.286
Child illness in previous 15 days: yes vs no	2.00	1.03-3.86	.040
Not fully immunised vs fully immunised	1.51	0.59-3.86	.389

Discussion

This study found a high burden of household food insecurity among families with under-five children in Ilorin West. Only 9.0% of households were food secure, while 43.5% were moderately and 45.5% severely food insecure according to the standard HFIAP algorithm. The high proportion classified as severe reflects the HFIAP rule that even infrequent occurrence of the most severe experiences, such as having no food or going to bed hungry, places a household in the severe category. This pattern underscores that food insecurity in an urban setting may involve not only food quality and dietary monotony but also episodes of substantial food deprivation.

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The nutritional-status findings indicated that 48.0% of children were classified with a predominant form of undernutrition, while 52.0% were classified as normal. Underweight was the most frequent predominant category, followed by stunting and wasting.

The observed association between household food insecurity and undernutrition is consistent with previous studies showing poorer nutritional outcomes among children living in food-insecure households (Burman et al., 2022; Patriota et al., 2024). The associations observed with child age, maternal education and recent illness also support evidence that childhood undernutrition reflects an interaction between household conditions, maternal characteristics and child health factors (Amare *et al.*, 2024; Fenta *et al.*, 2023).

Conclusion

Household food insecurity was highly prevalent among households with under-five children in Ilorin West LGA and was significantly associated with childhood undernutrition. Children from food-insecure households had substantially higher odds of undernutrition than those from food-secure households. Caregivers in food-secure households showed more favourable responses on selected nutrition and child-feeding practices. In multivariable analysis, older child age, female sex and recent illness were associated with higher odds of undernutrition, whereas older maternal age and secondary/tertiary maternal education were protective. These findings support integrated interventions that improve household food access, strengthen maternal education and feeding support, maintain routine growth monitoring, and ensure timely prevention and treatment of childhood illness.

Recommendations

1. Government and partner agencies should strengthen household food-security programmes, including livelihood support, social protection and access to affordable nutrient-dense foods for households with young children.
2. Primary healthcare facilities should intensify routine growth monitoring and nutritional screening using standard WHO indicators, with early referral for children with stunting, wasting or underweight.
3. Nutrition education should continue through antenatal care, immunisation clinics and community outreach, but should be paired with interventions that address household economic constraints.

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