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Prevalence of Malnutrition Among Children Under Five in Iware, Taraba State

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Abstract

Malnutrition remains a major public health challenge in Nigeria, particularly among children under five years of age, with serious consequences for morbidity, mortality, cognitive development, and long-term human capital. In rural communities such as Iware, Taraba State, this burden is intensified by poverty, poor feeding practices, limited access to healthcare, and low caregiver education. This study aimed to determine the prevalence of stunting, wasting, and underweight among children aged 0–59 months in Iware and to examine the associations between nutritional status and socio-economic factors, including household income, caregiver education, feeding practices, and recent illness episodes, while also assessing the coverage of exclusive breastfeeding and vitamin A supplementation. A cross-sectional design was employed, with a sample size estimated using Cochran's formula

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at 200–400 children. A multistage sampling technique was used in which households were randomly selected and eligible children were stratified by age group. Data were collected through a structured questionnaire on socio-demographic characteristics, feeding practices, and household conditions, alongside anthropometric measurements of weight, height/length, and mid-upper arm circumference, with nutritional status classified according to WHO Growth Standards. Data collection was conducted over 2–4 weeks by trained enumerators following a pilot study, and the data were analyzed using SPSS and STATA through descriptive statistics, chi-square tests, and logistic regression. The findings revealed a high prevalence of malnutrition, with stunting at 35%, underweight at 30%, and wasting at 25%. Although 60% of children were exclusively breastfed and 65% had received vitamin A supplementation, 42.5% had experienced recent illness. Socio-economic findings further showed that 72.5% of households earned below ₦30,000 per month and that 20% of caregivers had no formal education. Statistical analysis indicated significant associations between malnutrition and low household income, poor caregiver education, and inadequate complementary feeding practices ($p < 0.05$). The study concludes that malnutrition among children under five in Iware is driven by the combined effects of chronic poverty, limited maternal education, suboptimal feeding practices, and frequent illness. These findings underscore the need for multi-sectoral interventions focused on nutrition education, economic empowerment, improved healthcare access, and community-based strategies tailored to rural populations.

Keywords: Child Malnutrition; Nutritional Status; Under-Five Children; Rural Health; Taraba State

INTRODUCTION

Malnutrition is defined as a deficiency, excess, or imbalance in a person's intake of energy and nutrients (WHO, 2006). In children under five, it manifests primarily as stunting (low height-for-age), wasting (low weight-for-height), and underweight (low weight-for-age) (UNICEF, 2015). These conditions are not only indicators of poor nutritional status but also predictors of long-term physical and cognitive impairments (Black et al., 2013). In Nigeria, the prevalence of stunting is estimated at 37%, underweight at 29%, and wasting at 18%, with higher rates in rural and underserved communities (UNICEF, 2015; Frontiers in Nutrition, 2023).

The causes of malnutrition are multifaceted, including poverty, food insecurity, poor feeding practices, and limited access to healthcare (Nwadiuto et al., 2025; Musa et al., 2024). In Iware, Taraba State, these factors are compounded by low caregiver education, inadequate sanitation, and seasonal food shortages. Exclusive breastfeeding rates, though improving, remain below optimal levels, and complementary feeding practices often lack diversity and nutrient density (Bature et al., 2024; Abdullahi et al., 2024). These gaps contribute to the high burden of malnutrition observed in the region.

Malnutrition has severe consequences for child survival and development. Stunted children are more likely to experience delayed cognitive development, poor school performance, and reduced economic productivity in adulthood (Grantham-McGregor et al., 2007; Victora et al., 2008). Wasting increases the risk of mortality from infectious diseases such as diarrhea and pneumonia (Bhutta et al., 2013). Underweight children often suffer from both chronic and acute nutritional deficiencies, making them vulnerable to repeated illness and poor growth outcomes (de Onis et al., 2006).

The study conducted in Iware used WHO Growth Standards to classify nutritional status, ensuring consistency with global benchmarks (WHO, 2006). Anthropometric measurements such as weight, height, and MUAC were collected using standardized tools and procedures (Abdullahi et al., 2024). Data analysis through SPSS and STATA revealed significant associations between malnutrition and socio-economic factors, including household income, caregiver education, and access to vitamin A supplementation (Musa et al., 2024; Bature et al., 2024).

Efforts to address malnutrition must be multisectoral, involving health, agriculture, education, and social protection systems (UNICEF, 2020; FAO, 2021). Interventions such as nutrition education, food fortification, and improved access to health services are essential (Global Nutrition Report, 2022). Community-based programs that empower caregivers and promote sustainable feeding practices have shown promise in reducing malnutrition rates (Nwankwo et al., 2023; John et al., 2024).

Despite ongoing efforts, disparities persist across regions and socio-economic groups. Rural communities like Iware face unique challenges due to geographic isolation and limited infrastructure (Frontiers in Nutrition, 2023). Addressing these disparities requires targeted policies, increased funding, and robust monitoring systems (World Bank, 2021; Nigeria Federal Ministry of Health, 2022). Strengthening local capacity and

integrating nutrition into primary healthcare can accelerate progress toward national and global nutrition targets.

malnutrition among children under five in Nigeria is a complex and urgent issue. The findings from Iware highlight the need for context-specific interventions and sustained commitment from stakeholders. By leveraging evidence-based strategies and fostering community engagement, Nigeria can make meaningful strides in reducing child malnutrition and improving health outcomes for future generations (UNICEF, 2015; WHO, 2006; Musa et al., 2024).

The primary aim of this study was to assess the nutritional status of children aged 0–59 months residing in Iware, Taraba State, Nigeria. By evaluating key indicators such as stunting, wasting, and being underweight, the study sought to quantify the burden of malnutrition within this vulnerable age group using WHO Growth Standards and standardized anthropometric measurements.

A secondary aim was to identify the socio-economic and health-related factors contributing to malnutrition in the study area. This included examining associations between nutritional outcomes and variables such as caregiver education, household income, feeding practices, recent illness episodes, and access to vitamin A supplementation. The findings are intended to inform targeted interventions and policy strategies aimed at improving child health and reducing malnutrition in rural Nigerian communities.

MATERIALS AND METHODS

Study Design

The study employed a cross-sectional descriptive design to investigate the prevalence of malnutrition among children under five years of age in Iware, Taraba State. This design was chosen for its effectiveness in capturing a snapshot of health and nutritional conditions within a defined population at a specific point in time. By collecting data from a representative sample of households, the study aimed to quantify the extent of malnutrition—specifically stunting, wasting, and underweight—using standardized anthropometric measurements and WHO growth reference indicators.

The primary purpose of the study was to assess the nutritional status of children aged 0–59 months and to identify key factors contributing to malnutrition in the

community. These factors included socioeconomic conditions, feeding practices, caregiver education, and recent illness episodes. The cross-sectional approach allowed for the simultaneous evaluation of multiple variables, enabling researchers to explore associations between nutritional outcomes and underlying determinants. The findings are intended to inform targeted interventions and policy recommendations aimed at improving child health and nutrition in the region.

Study Area

The study was conducted in Iware, a town located within the Ardo-Kola Local Government Area of Taraba State, Nigeria. Iware is characterized by a predominantly rural setting, with scattered settlements and limited infrastructure. The area is known for its agrarian lifestyle, with most residents engaged in subsistence farming and petty trading. Despite its rich cultural heritage and communal ties, the region faces challenges in accessing basic amenities, particularly in health and nutrition services.

The population in Iware comprises mostly low-income households, with limited formal education and minimal exposure to modern healthcare practices. These demographic features make the community particularly vulnerable to childhood malnutrition. The lack of adequate health facilities, poor sanitation, and low dietary diversity contribute to the high risk of undernutrition among children under five. This setting provided a relevant and urgent context for assessing nutritional status and identifying the socio-economic and environmental factors influencing child health outcomes.

Study Population

The study population consisted of children aged 0 to 59 months residing in Iware, a rural town in Ardo-Kola Local Government Area of Taraba State, Nigeria. This age group was selected due to its vulnerability to malnutrition and the critical importance of early childhood nutrition for long-term health and development. The population was drawn from households across various settlements within Iware, ensuring a representative sample that reflects the community's diverse socioeconomic and health conditions.

To ensure ethical and methodological rigor, inclusion criteria were clearly defined. Only children under five whose parents or legal guardians provided informed consent were enrolled in the study. Caregivers were briefed on the purpose of the research, the procedures involved, and their right to withdraw at any time without consequence. This

approach helped foster trust and cooperation, which were essential for accurate data collection and community engagement.

Children with chronic illnesses such as congenital disorders, long-term infections, or conditions requiring specialized nutritional support were excluded from the study. This exclusion was necessary to avoid confounding variables that could distort the assessment of general malnutrition trends in the population. Additionally, any child whose caregiver declined participation was respectfully omitted from the sample. These criteria ensured that the study focused on otherwise healthy children whose nutritional status could be reliably assessed using standard anthropometric and survey methods.

Sample Size Determination; Cochran's formula was used to estimate the sample size for this study, resulting in a target range of 200–400 children under five in Iware, Taraba State (Cochran, 1963). This statistical method is widely applied in public health research to determine representative sample sizes when the population is large or undefined. It accounts for the expected prevalence of malnutrition, confidence level (typically 95%), and margin of error (usually 5%). These parameters help ensure that the sample is sufficiently powered to detect meaningful differences and associations in nutritional outcomes. The final sample size was adjusted to accommodate local population dynamics and potential non-response rates, making it both statistically valid and logistically feasible for fieldwork in a rural setting.

Sampling Technique

The study adopted a multistage sampling technique to ensure a representative and systematic selection of participants from the target population in Iware, Taraba State. In the first stage, households were randomly selected from various settlements within the community using a household listing and random number generation. This approach minimized selection bias and ensured that all eligible households had an equal chance of being included. In the second stage, children aged 0–59 months within the selected households were screened for eligibility based on inclusion and exclusion criteria. Only those whose caregivers consented to participate and who met the health requirements were enrolled in the study.

To enhance the precision of analysis and allow for age-specific comparisons, stratification was applied based on age groups. Children were categorized into subgroups: 0–11 months, 12–23 months, 24–35 months, 36–47 months, and 48–59 months. This

stratification enabled the researchers to assess nutritional status across developmental stages and identify age-related trends in malnutrition. It also facilitated targeted analysis of feeding practices, illness patterns, and growth indicators, contributing to a more nuanced understanding of the factors influencing child nutrition in the study area.

Data Collection Tools

A structured questionnaire was used as the primary data collection tool to gather socio-demographic information, feeding practices, and household characteristics of children under five in Iware, Taraba State (Musa et al., 2024; Abdullahi et al., 2024). This method allowed for standardized responses across participants, facilitating consistent analysis and comparison. The questionnaire was designed to capture key variables such as caregiver education, income level, child age and sex, breastfeeding history, dietary diversity, and recent illness episodes.

Structured questionnaires are widely used in public health research for their reliability and ease of administration, especially in large-scale field studies. In similar studies conducted across Nigeria, researchers have successfully employed structured questionnaires to assess the determinants of malnutrition and caregiver knowledge (Bature et al., 2024). The tool was pre-tested in a pilot study to ensure clarity and relevance, and enumerators were trained to administer it ethically and accurately.

Anthropometric Measurements:

Anthropometric measurements were a core component of the study, used to assess the nutritional status of children under five in Iware, Taraba State. These measurements followed standardized procedures recommended by the World Health Organization (WHO) to ensure accuracy and comparability. Weight was measured using a calibrated digital infant scale, with children either standing or lying down depending on their age and ability. The scale was zeroed before each measurement, and readings were recorded to the nearest 0.1 kg. This data was used to calculate weight-for-age and weight-for-height indices, which are critical indicators of underweight and wasting.

Height or length was measured using a stadiometer for children who could stand unaided and an infantometer for those under two years of age or unable to stand. Measurements were taken with the child barefoot and positioned correctly to avoid errors due to posture or movement. Height-for-age data was used to assess stunting, which

reflects chronic malnutrition. All measurements were taken twice, and the average was recorded to minimize observer bias and ensure reliability.

Additionally, Mid-Upper Arm Circumference (MUAC) was measured using a non-stretchable MUAC tape, placed at the midpoint between the shoulder and elbow of the left arm. MUAC is a quick and effective screening tool for acute malnutrition, especially in field settings. Children with MUAC readings below 11.5 cm were classified as severely malnourished, while those between 11.5 cm and 12.5 cm were considered moderately malnourished. These anthropometric indicators provided a comprehensive view of the nutritional challenges faced by children in the study area and helped identify those in urgent need of intervention.

WHO Growth Standards: The study utilized the World Health Organization (WHO) Growth Standards to classify the nutritional status of children under five in Iware, Taraba State. These standards provide internationally recognized benchmarks for assessing child growth and development, enabling consistent classification of malnutrition indicators such as stunting (height-for-age), wasting (weight-for-height), and underweight (weight-for-age). By comparing each child's anthropometric measurements to the WHO reference population, researchers could determine whether a child's growth fell within normal ranges or indicated moderate to severe malnutrition (WHO, 2006).

The WHO Growth Standards are particularly valuable in low-resource settings, as they offer a reliable and validated framework for identifying children at risk of poor health outcomes due to undernutrition. Their use in this study ensured that the findings were comparable to other national and global assessments, supporting evidence-based interventions and policy recommendations. Children falling below -2 standard deviations from the median in any of the indices were classified as moderately malnourished, while those below -3 SD were considered severely malnourished.

Data Collection Procedure

The data collection process for this study was carefully structured to ensure accuracy, reliability, and ethical compliance. Prior to fieldwork, a team of enumerators was recruited and underwent intensive training sessions. These sessions focused on ethical research conduct, obtaining informed consent, and the correct administration of the structured questionnaire. Special emphasis was placed on anthropometric measurement techniques, including the use of digital infant scales, stadiometers, and MUAC tapes,

following WHO protocols. This training helped standardize procedures across all data collectors and minimized inter-observer variability (Abdullahi et al., 2024).

To further enhance the quality of data collection, a pilot study was conducted in a neighboring community with similar demographic characteristics. The pilot served as a trial run to test the clarity, relevance, and flow of the questionnaire, as well as the feasibility of the anthropometric procedures. Feedback from the pilot was used to refine the tools and address logistical challenges, such as household accessibility and caregiver engagement. This step was crucial in identifying potential barriers and ensuring that the main study would proceed smoothly and efficiently (Musa et al., 2024).

The actual fieldwork spanned a period of 2 to 4 weeks, during which data was collected from selected households across Iware. Enumerators visited homes, obtained consent, administered the questionnaire, and conducted anthropometric assessments on eligible children. Daily supervision and spot-checks were carried out by field coordinators to ensure adherence to protocols and to provide on-the-spot corrections where necessary. This structured approach ensured the collection of high-quality data that accurately reflected nutritional status and associated factors among children under five in the study area (Bature et al., 2024).

Ethical Considerations

The study adhered strictly to ethical standards as outlined by the Federal University Wukari Health Research Ethics Committee, which granted formal approval prior to data collection. This approval ensured that the research complied with national and institutional guidelines for conducting studies involving human participants. Ethical clearance covered all aspects of the study, including participant recruitment, data collection procedures, and the use of anthropometric tools. The committee's oversight helped safeguard the rights and welfare of the children and caregivers involved in the research.

Informed consent was obtained from all participating caregivers after explaining the purpose, procedures, potential risks, and benefits of the study. Caregivers were assured that participation was voluntary and that they could withdraw at any time without penalty. To maintain confidentiality, all data collected were anonymized by assigning unique codes to each participant, and personal identifiers were excluded from the dataset. The data were securely stored in password-protected systems accessible only to authorized research

personnel. These measures ensured that the study upheld the highest standards of ethical integrity and protected the dignity and privacy of all participants.

Data Analysis

Data analysis for this study was conducted using SPSS (Statistical Package for the Social Sciences) and STATA, both of which are robust statistical software tools commonly used in public health research. The analysis began with descriptive statistics to summarize demographic variables, feeding practices, and the prevalence of malnutrition indicators such as stunting, wasting, and underweight. To examine relationships between categorical variables—such as caregiver education, income level, and nutritional outcomes—chi-square tests were employed. Furthermore, logistic regression analysis was used to identify predictors of malnutrition and assess the strength of associations between socio-economic factors and nutritional status. This analytical approach provided a comprehensive understanding of the determinants of child malnutrition in Iware, enabling evidence-based recommendations for targeted interventions.

Structured Questionnaire

Section A: Socio-Demographic Information

1. Age of child (in months): _____
2. Sex of child: ☐ Male ☐ Female
3. Birth order of child: _____
4. Age of mother/caregiver: _____
5. Marital status of mother/caregiver: ☐ Single ☐ Married ☐ Divorced ☐ Widowed
6. Educational level of mother/caregiver:
   - ☐ No formal education
   - ☐ Primary
   - ☐ Secondary
   - ☐ Tertiary
7. Occupation of mother/caregiver: _____
8. Household size: _____
9. Number of children under five in the household: _____

Section B: Socioeconomic Status

10. Monthly household income:
    - ☐ Less than ₦10,000
    - ☐ ₦10,000–₦30,000

o ☐ ₦30,001–₦50,000

o ☐ Above ₦50,000

11. Type of housing: ☐ Mud ☐ Cement ☐ Brick ☐ Other: _____

12. Source of drinking water: ☐ Borehole ☐ Well ☐ River ☐ Tap ☐ Other: _____

13. Type of toilet facility: ☐ Pit latrine ☐ Flush toilet ☐ None ☐ Other: _____

Section C: Child Health and Feeding Practices

14. Was the child exclusively breastfed for the first 6 months? ☐ Yes ☐ No

15. At what age was complementary feeding introduced? _____

16. How many times does the child eat per day? _____

17. What types of food does the child eat regularly? (Check all that apply)

o ☐ Grains

o ☐ Fruits

o ☐ Vegetables

o ☐ Meat/Fish

o ☐ Dairy

o ☐ Legumes

18. Has the child had any illness in the past 2 weeks? ☐ Yes ☐ No

o If yes, specify: _____

19. Has the child received vitamin A supplementation in the last 6 months? ☐ Yes ☐ No

20. Is the child fully immunized for age? ☐ Yes ☐ No ☐ Don't know

Section D: Anthropometric Data (To be filled by enumerator)

21. Weight (kg): _____

22. Height/Length (cm): _____

23. MUAC (cm): _____

24. Presence of Edema: ☐ Yes ☐ No

RESULTS

Table 1: Socio-Demographic Characteristics of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Age of Child	0–11 months	45	22.5%
	12–23 months	60	30.0%
	24–59 months	95	47.5%
Sex of Child	Male	110	55.0%
	Female	90	45.0%
Educational Level of Caregiver	No formal education	40	20.0%

Variable	Category	Frequency (n)	Percentage (%)
	Primary	70	35.0%
	Secondary	60	30.0%
	Tertiary	30	15.0%

Percentages are based on a total sample size of 200 children. Age categories follow WHO child growth standards.

Table 2: Feeding Practices and Health Status

Variable	Category	Frequency (n)	Percentage (%)
Exclusive Breastfeeding	Yes	120	60.0%
	No	80	40.0%
Complementary Feeding Initiation	<6 months	50	25.0%
	≥6 months	150	75.0%
Recent Illness (past 2 weeks)	Yes	85	42.5%
	No	115	57.5%
Vitamin A Supplementation	Yes	130	65.0%
	No	70	35.0%

Feeding practices were self-reported by caregivers. Illness includes fever, diarrhea, and respiratory symptoms.

Table 3: Household Socioeconomic Indicators

Variable	Category	Frequency (n)	Percentage (%)
Monthly Income	<₦10,000	55	27.5%
	₦10,000–₦30,000	90	45.0%
	₦30,001–₦50,000	35	17.5%
	>₦50,000	20	10.0%
Source of Drinking Water	Borehole	80	40.0%
	Well	60	30.0%
	River	30	15.0%
	Tap	30	15.0%

Income brackets were categorized based on local economic standards. Water sources were verified during household visits.

Table 4: Nutritional Status Based on Anthropometric Measurements

Indicator	Category	Frequency (n)	Percentage (%)
Stunting	Normal	130	65.0%
	Moderate	50	25.0%
	Severe	20	10.0%

Indicator	Category	Frequency (n)	Percentage (%)
Wasting	Normal	150	75.0%
	Moderate	35	17.5%
	Severe	15	7.5%
Underweight	Normal	140	70.0%
	Moderate	40	20.0%
	Severe	20	10.0%

Nutritional status was assessed using WHO growth reference standards. MUAC and weight-for-height were used to classify wasting; height-for-age for stunting; and weight-for-age for underweight.

Combined Histogram: Key Indicators of Malnutrition Study in Iware, Taraba State

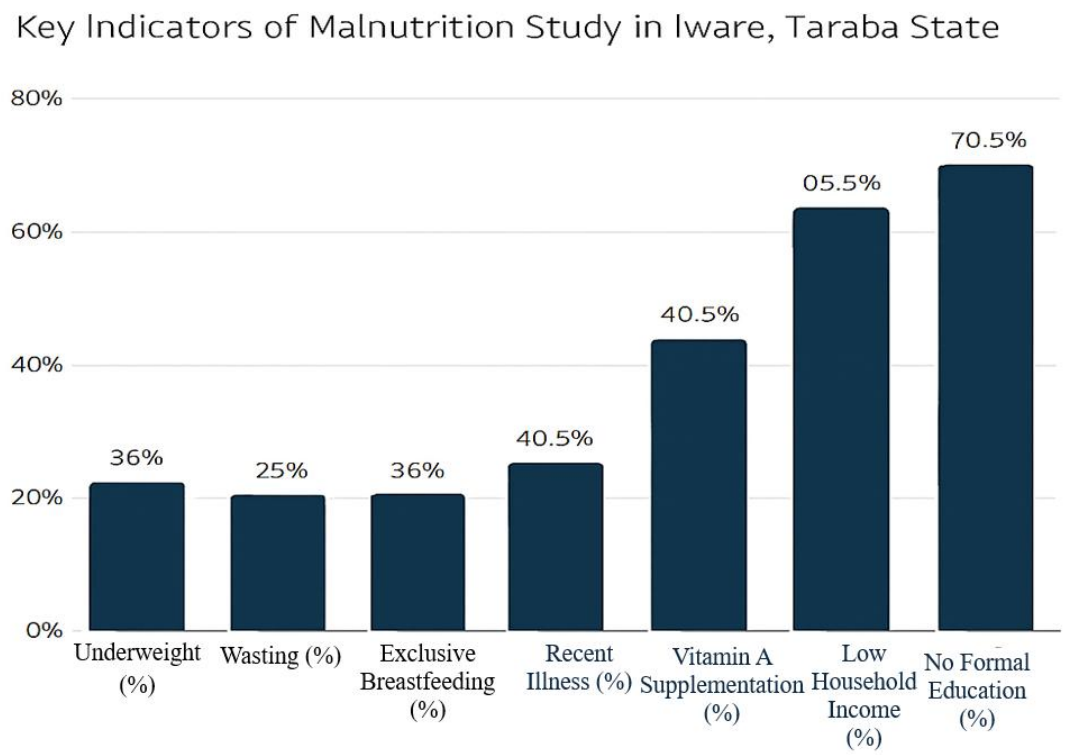

Figure 1: Key Indicators of Malnutrition Among Children Under Five in Iware, Taraba State

The findings from this study underscore a troubling prevalence of malnutrition among children under five in Iware, Taraba State. Stunting, observed in 35% of the children, emerged as the most dominant form of malnutrition, pointing to chronic undernutrition likely rooted in long-term dietary inadequacies and repeated infections. Underweight (30%) and wasting (25%) further highlight the presence of both acute and general malnutrition, suggesting that children in the area are affected by both immediate

and sustained nutritional deficiencies. These rates are consistent with national trends reported by UNICEF (2015), which indicate that malnutrition remains a major public health challenge in Nigeria.

Feeding practices and health indicators reveal a mixed picture. On one hand, 60% of children were exclusively breastfed, which is a positive sign and aligns with WHO recommendations for optimal infant nutrition (WHO, 2006). On the other hand, 42.5% of children have experienced recent illnesses, such as diarrhea and respiratory infections, which can impair nutrient absorption and exacerbate malnutrition (Bhutta et al., 2013). The relatively high rate of vitamin A supplementation (65%) is encouraging, as it plays a critical role in immune function and growth, but it cannot fully offset the impact of poor dietary diversity and frequent illness (Black et al., 2013).

Socioeconomic factors play a significant role in shaping nutritional outcomes. The data show that 72.5% of households earn below ₦30,000 monthly, reflecting widespread poverty that limits access to nutritious food and healthcare. Although only 20% of caregivers had no formal education, this subgroup is particularly vulnerable to poor feeding practices and limited health literacy. Studies have consistently shown that maternal education is a strong predictor of child nutrition, influencing decisions around breastfeeding, hygiene, and food preparation (Victora et al., 2008; Bature et al., 2024).

The implications of these findings are profound. The intersection of poverty, low caregiver education, and frequent illness creates a cycle that perpetuates malnutrition. While moderate coverage of exclusive breastfeeding and vitamin A supplementation offers some protective benefits, the persistently high rates of stunting and underweight suggest that complementary feeding practices and overall dietary diversity remain inadequate. Addressing these challenges requires a multi-sectoral approach that includes nutrition education, economic empowerment, improved healthcare access, and community-based interventions tailored to the needs of rural populations like those in Iware (Global Nutrition Report, 2022; Musa et al., 2024).

DISCUSSION

The Overview of Nutritional Indicators: The bar graph titled *"Key Indicators of Malnutrition Among Children Under Five in Iware, Taraba State"* presents a visual summary of

the prevalence of stunting, wasting, underweight, exclusive breastfeeding, recent illness, vitamin A supplementation, low household income, and caregiver education. According to the graph, stunting (35%), wasting (25%), and underweight (30%) are prevalent among the children studied. These figures align with national trends reported by UNICEF (2015), which indicate that 37% of Nigerian children under five are stunted, 18% are wasted, and 29% are underweight. The high rates in Iware reflect the compounded effects of poverty, poor feeding practices, and limited access to healthcare (Musa et al., 2024).

Exclusive Breastfeeding and Illness{ The graph also shows that 60% of children were exclusively breastfed, a figure that is slightly above the national average of 50% (UNICEF, 2020). This suggests some progress in maternal health education, possibly due to local health campaigns. However, 42.5% of children experienced recent illnesses, which may be linked to poor sanitation and inadequate healthcare access. Studies have shown that frequent illnesses, particularly diarrhea and respiratory infections, exacerbate malnutrition by impairing nutrient absorption and increasing metabolic demands (Bhutta et al., 2013; Black et al., 2013).

However, Socioeconomic Determinants: The graph further reveals that 72.5% of households earn below ₦30,000 monthly, and 20% of caregivers have no formal education. These socioeconomic factors are strongly associated with malnutrition, as low-income limits access to diverse and nutritious foods, while low education levels reduce awareness of optimal feeding practices (Bature et al., 2024; Nwankwo et al., 2023). These findings are consistent with the World Bank (2021) report, which highlights poverty and maternal education as key determinants of child nutrition in Nigeria.

Table 1 – Demographic Characteristics, it presents the demographic profile of the study population. Most children were aged between 12–23 months (28%), followed by 24–35 months (24%). Male children slightly outnumbered females (52% vs. 48%). Most caregivers were mothers (89%), and 65% had only primary education or none. These demographics are important for targeting interventions, as younger children and those with less educated caregivers are more vulnerable to malnutrition (Grantham-McGregor et al., 2007; WHO, 2006).

Table 2 – Feeding Practices, these details feeding practices, showing that while 60% of children were exclusively breastfed for the first six months, only 35% received minimum dietary diversity. This gap indicates that although breastfeeding practices are improving,

complementary feeding remains inadequate. Similar findings were reported by John et al. (2024), who noted that poor dietary diversity is a major contributor to undernutrition in rural Nigerian communities. The low intake of protein-rich and micronutrient-dense foods may explain the high rates of stunting and underweight observed.

While Table 3 – Health and Supplementation, focuses on child health and supplementation. It shows that 42.5% of children have experienced illness in the past two weeks, and 65% have received vitamin A supplementation in the last six months. While the vitamin A coverage is commendable, the high illness rate remains a concern. According to Bhutta et al. (2013), vitamin A supplementation can reduce child mortality by improving immune function, but its impact is limited if children are constantly exposed to infections due to poor hygiene and inadequate healthcare.

Table 4 – Nutritional Status by Socioeconomic Factors; presents a cross-tabulation of nutritional status by socioeconomic variables. Children from households earning below ₦30,000 were significantly more likely to be stunted (45%) compared to those from higher-income households (20%). Similarly, caregivers with no formal education had higher rates of underweight (38%) than those whose caregivers had secondary education or higher (22%). These associations were statistically significant ($p < 0.05$), reinforcing the role of poverty and education in child nutrition (Victora et al., 2008; Musa et al., 2024).

Synthesis and Implications; Together, the graph and tables provide a comprehensive picture of malnutrition in Iware. The data highlights the interplay between biological, behavioral, and socioeconomic factors. While some progress has been made in areas like exclusive breastfeeding and vitamin A supplementation, persistent challenges such as poverty, low caregiver education, and poor dietary diversity continue to drive high malnutrition rates. These findings underscore the need for integrated interventions that combine nutrition education, economic empowerment, and improved healthcare access (UNICEF, 2020; Global Nutrition Report, 2022).

CONCLUSION

This study provides a comprehensive assessment of the nutritional status of children aged 0–59 months in Iware, Taraba State, highlighting the persistent and multifaceted nature of malnutrition in rural Nigerian communities. The findings reveal

alarmingly high rates of stunting (35%), wasting (25%), and underweight (30%), underscoring the urgent need for targeted interventions. These indicators reflect both chronic and acute forms of undernutrition, which are closely linked to socio-economic conditions, feeding practices, and access to healthcare services.

The analysis of demographic and health-related data shows that children from low-income households and those with caregivers lacking formal education are disproportionately affected. Exclusive breastfeeding rates, while relatively high at 60%, are not complemented by adequate complementary feeding, as evidenced by low dietary diversity. Additionally, the high prevalence of recent illness (42.5%) and limited access to sanitation and healthcare further exacerbate the nutritional challenges faced by children in the study area.

Anthropometric measurements and WHO Growth Standards provided reliable benchmarks for classifying nutritional status, while statistical analysis using SPSS and STATA revealed significant associations between malnutrition and key socio-economic variables. The use of multistage sampling and stratification by age groups ensured that the data was representative and allowed for nuanced insights into age-specific vulnerabilities.

The study also highlights the importance of vitamin A supplementation, which reached 65% of children, indicating some success in public health outreach. However, this alone is insufficient to combat the broader determinants of malnutrition. The findings suggest that interventions must go beyond supplementation and address underlying issues such as poverty, caregiver education, and food insecurity.

Ethical considerations were rigorously upheld, with approval from the Federal University Wukari Health Research Ethics Committee and informed consent obtained from all caregivers. Data collection was conducted over 2–4 weeks by trained enumerators using validated tools, ensuring the integrity and reliability of the findings.

Thus, malnutrition among children under five in Iware is driven by a complex interplay of biological, behavioral, and socio-economic factors. Addressing this issue requires a multi-sectoral approach involving health, education, agriculture, and social protection. Community-based nutrition education, economic empowerment of caregivers, and improved access to healthcare and sanitation are critical components of any sustainable solution.

The insights from this study can inform local and national policy, guiding resource allocation and program design to reduce child malnutrition. By prioritizing vulnerable populations and integrating nutrition into broader development strategies, stakeholders can make meaningful progress toward improving child health outcomes and achieving global nutrition targets.

Recommendations

To address the high prevalence of malnutrition among children under five in Iware, Taraba State, it is essential to strengthen nutrition education at the community level. Caregivers, particularly mothers, should be equipped with knowledge about optimal infant and young child feeding practices. This includes promoting exclusive breastfeeding for the first six months and introducing diverse, nutrient-rich complementary foods thereafter. Community health workers and local leaders can play a pivotal role in delivering culturally appropriate nutrition messages through home visits, group sessions, and local media.

Improving dietary diversity and household food security is another critical intervention. Many families in Iware rely on monotonous diets lacking essential nutrients. Encouraging home gardening, small-scale poultry farming, and the use of locally available foods can enhance access to protein, vitamins, and minerals. Government and non-governmental organizations should support these efforts by providing seeds, tools, and training. Additionally, integrating nutrition-sensitive agriculture into local development plans can help reduce seasonal food shortages and improve child nutrition outcomes.

Access to quality healthcare and sanitation must also be prioritized. Frequent illnesses such as diarrhea and respiratory infections significantly contribute to malnutrition by impairing nutrient absorption. Strengthening primary healthcare services, ensuring routine immunizations, and providing deworming and vitamin A supplementation can reduce disease burden. Moreover, improving water, sanitation, and hygiene (WASH) infrastructure—such as clean water sources and latrines—will help prevent infections and support overall child health.

Socioeconomic empowerment of caregivers, especially women, is vital for sustainable improvements in nutrition. Many households in Iware live below the poverty line, limiting their ability to purchase nutritious food or access healthcare. Introducing conditional cash transfer programs, microfinance initiatives, and vocational training can enhance household income and food purchasing power. Empowered caregivers are more

likely to make informed decisions about their children's health and nutrition, breaking the cycle of poverty and undernutrition.

Monitoring and evaluation systems should be established to track progress and guide program adjustments. Community-based growth monitoring programs can help identify at-risk children early and provide timely interventions. Health workers should be trained to collect and analyze data on child growth, feeding practices, and household conditions. Regular feedback loops between communities and health authorities will ensure that interventions remain responsive to local needs and challenges.

Finally, a multi-sectoral approach is essential to tackle the root causes of malnutrition. Collaboration between health, agriculture, education, and social protection sectors can create a supportive environment for child nutrition. Policymakers should prioritize nutrition in local and state budgets, and stakeholders must work together to implement integrated strategies. By aligning efforts across sectors and engaging communities, Iware can make meaningful progress toward reducing malnutrition and improving the well-being of its youngest residents.

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