

Prevalence and Determinants of Malnutrition among Children Under-Five Years in Jalingo Local Government Area of Taraba State, Nigeria

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Abstract

Keywords

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Malnutrition remains a major public health problem among under-five children and contributes significantly to childhood morbidity and mortality, particularly in developing countries. Researchers used a descriptive cross-sectional study. They surveyed 1,200 caregivers of children under five. Information was gathered through structured questionnaires and by measuring the children's height and weight. The results were analyzed using basic statistics and shown as counts and percentages. The study found that 49% of the children were malnourished, which is a high number. The most common types of malnutrition were being underweight (20%), stunted (18%), and wasted (11%). Factors like low family income, having many children in the family, and not having enough food were linked to poor nutrition in children. Also, feeding practices weren't ideal. Many mothers didn't exclusively breastfeed for the recommended six months. Poor food variety and incorrect ways of feeding older babies were also common. The study also showed that when mothers were more educated and knew more about nutrition, their children's feeding habits and how often they sought healthcare improved. However, mothers still lacked some knowledge and didn't always use child health services consistently. Access to healthcare and sanitation facilities was okay, but problems with regular growth checks, safe drinking water, and proper toilets remained. These conditions made children more likely to get infections, like diarrhea, which made their malnutrition worse. The study concluded that malnutrition in children under five is a major public health problem. It's affected by money problems, mother's situation, feeding habits, healthcare, and the environment.

1. Introduction

Malnutrition remains a critical public health concern globally, particularly among children under five years of age. According to the World Health Organization (WHO), malnutrition includes both undernutrition manifested as stunting, wasting, and underweight and overnutrition. Among under-

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five children, undernutrition continues to be a major driver of morbidity and mortality, with about 45 % of child deaths globally linked to poor nutrition (WHO, 2021). Africa carries a disproportionate share of this burden, with stunting prevalence around 30.7% and wasting about 6.0% among under-five children, making it one of the regions most affected globally (UNICEF/WHO/World Bank, 2023). Sub-Saharan Africa, alongside South Asia, consistently records the highest levels of child undernutrition and hunger (FAO, 2023).

Nigeria contributes substantially to the African and global malnutrition burden. The country has one of the world's highest absolute numbers of stunted children, ranking second globally in stunting prevalence (UNICEF, 2024). Data show that Nigeria has about 768,479 under-five child deaths annually and applying the WHO estimate that 45% of these are attributable to malnutrition, roughly 345,816 deaths in Nigeria each year are linked to poor nutrition (UNICEF, 2024; WHO, 2021). This translates to about 14–16% of the global malnutrition linked child deaths, indicating Nigeria's significant contribution to the global figure (Ritchie, 2024; Madewell et al., 2024). Globally, the most nutritionally disadvantaged countries include Somalia, Yemen, Chad, and Madagascar, which report the highest Global Hunger Index (GHI) scores and very high stunting and wasting levels (Global Hunger Index, 2024).

In Africa, countries such as Somalia, Chad, South Sudan, Niger, the Central African Republic, Burundi, and the Democratic Republic of the Congo are consistently ranked among those with the worst nutrition outcomes (Ekholuenetale et al., 2022; FAO, 2023).

In Nigeria, malnutrition contributes significantly to childhood morbidity and mortality, with stunting, wasting, and underweight being the most prevalent forms. The 2018 Nigeria Demographic and Health Survey (NDHS) revealed that 37% of children under five were stunted, 7% were wasted, and 22% were underweight. These alarming figures highlight a widespread nutritional crisis that continues to hinder child survival, development, and overall national development (National Population Commission & ICF, 2019). Factors such as poverty, food insecurity, infectious diseases, and poor feeding practices all play a role in perpetuating malnutrition in Nigeria. Moreover, disparities across different regions and communities further complicate the national burden of child malnutrition.

Several factors affect a child's nutritional status: whether there's enough food, access to healthcare, a mother's education, sanitation, and how much money a household makes. When food is scarce, perhaps due to crop failures or conflicts, especially in the Northeast, families have a harder time getting enough nutritious food. Good healthcare is important because it means children with illnesses like diarrhea or breathing problems, which can worsen malnutrition, and can get treated quickly. Research by Onyeonoro and others in 2019 shows that educated mothers tend to have better feeding and healthcare practices for their children, including breastfeeding exclusively, giving appropriate food after six months, and getting vaccinations. Better sanitation also lowers the chance of infections that prevent the body from absorbing nutrients. Lastly, having more household income means families can buy a wider variety of healthy foods. (UNICEF, 2021).

The aim of this study is to determine the prevalence and identify the determinants of malnutrition among children under five years in rural and urban communities of Taraba State. The specific objectives include:

1. To determine the prevalence of malnutrition among under-five children in rural and urban areas of Taraba State.
2. To identify the socio-demographic and economic factors influencing malnutrition in the study population.
3. To examine the influence of feeding practices such as breastfeeding and complementary feeding on the nutritional status of children under five.
4. To assess the role of maternal education on the nutritional outcomes of children.

5. To assess the role of access to healthcare and sanitation in contributing to malnutrition among children in both rural and urban settings.

2. Materials and Methods

2.1 Study Area

The study was conducted in Jalingo Local Government Area of Taraba State, Nigeria, an urban and peri-urban setting with several primary, secondary, and tertiary health facilities. The area was selected because of its large population, accessibility, and high utilization of maternal and child health services.

2.2 Design

A descriptive cross-sectional study design was adopted to assess the prevalence and determinants of malnutrition among under-five children. Primary data were collected at a single point in time using structured questionnaires.

2.3 Study Population

The study population comprised mothers and primary caregivers of under-five children attending Maternal and Child Health Clinics in selected Primary Health Care Centres in Jalingo LGA. Only consenting caregivers who met the inclusion criteria participated in the study.

2.4 Sample Size and Sample Size Determination

A multistage sampling technique was employed to select eligible respondents from selected health facilities. Using Taro Yamane's formula and a design effect of three, a final sample size of 1,200 participants was obtained.

2.5 Ethical Consideration

Ethical approval and institutional permission were obtained before data collection. Written informed consent, confidentiality, voluntary participation, and participants' right to withdraw were maintained throughout the study in accordance with the Declaration of Helsinki.

2.6 Instrument for Data Collection

Data were collected using a structured interviewer administered questionnaire adapted from the Nigeria Demographic and Health Survey and WHO guidelines. Anthropometric measurements were also obtained to assess the nutritional status of under-five children using WHO growth standards.

2.7 Validation of the Instrument

The questionnaire underwent face and content validation by experts in Public Health, Nutrition, and Measurement and Evaluation. Their recommendations were incorporated to improve the clarity, relevance, and validity of the instrument.

2.8 Data Analysis

Data was analyzed using SPSS version 27.0. Descriptive statistics summarized respondents' characteristics, while Chi-square and binary logistic regression were used to determine factors associated with malnutrition at a 5% level of significance.

3. Results

Table 1 presents the socio-demographic characteristics of the 339 respondents. The distribution shows a slightly higher proportion of females (53.8%) compared to males (46.2%). Most respondents were aged 25–34 years (35.8%), followed by 35–44 years (29.2%). The majority were married (52.8%) and had a bachelor's degree (40.6%). Professionally, nurses/midwives represented the largest group (34.9%), followed by laboratory scientists/technicians (19.8%) and doctors (17.9%). Work experience was primarily within 5–10 years (34.9%). Regarding facility distribution,

respondents were drawn from University of Calabar Teaching Hospital (45.3%), Nigeria Navy Hospital (32.1%), and Federal Neuro-Psychiatric Hospital (22.6%). This indicates a diverse sample across gender, age, professional categories, and healthcare facilities.

Table 4.2.1: Socio-demographic characteristics of respondents (n = 1200)

Variable	Parameter	Frequency	Percentage (%)
Age of child (months)	0–5	168	14.0
	6–11	204	17.0
	12–23	276	23.0
	24–35	192	16.0
	36–47	180	15.0
	48–59	180	15.0
	Total	1200	100.00
Sex of child	Male	624	52.0
	Female	576	48.0
	Total	1200	100.00
Place of residence	Urban	720	60.0
	Rural	480	40.0
	Total	1200	100.00
Age of mother/caregiver (years)	<20	96	8.0
	20–29	384	32.0
	30–39	420	35.0
	40–49	204	17.0
	≥50	96	8.0
	Total	1200	100.00
Educational level of mother/caregiver	No formal education	216	18.0
	Primary	300	25.0
	Secondary	420	35.0
	Tertiary	264	22.0
Position of child	First child	336	28.0
	Second–third	492	41.0
	Fourth and above	372	31.0
Type of family	Monogamy	720	60.0
	Polygamy	336	28.0
	Single parent	144	12.0
	Total	1200	100.00

Table 4.2.1 presents the socio-demographic characteristics of the 1,200 respondents. The highest proportion of children were aged 12–23 months (23.0%), while those aged 0–5 months constituted the smallest group (14.0%). Male children (52.0%) slightly outnumbered females (48.0%), and most respondents resided in urban areas (60.0%). The majority of mothers or caregivers were aged 30–39 years (35.0%), followed by those aged 20–29 years (32.0%), whereas only 8.0% were below 20 years or 50 years and above. Regarding educational attainment, 35.0% had secondary education, 25.0% had primary education, 22.0% had tertiary education, and 18.0% had no formal education. Most children were the second or third child in the family (41.0%), followed by fourth-born or higher (31.0%) and first-born children (28.0%). In terms of family structure, most respondents came from monogamous families (60.0%), while 28.0% belonged to polygamous families and 12.0% were from single-parent households.

4.2.2: Prevalence of Malnutrition among Under-Five Children (n = 1200)

Variable	Parameter	Frequency	Percentage (%)
Child experienced weight loss (past 3months)	Yes	312	26.0
	No	888	74.0
	Total	1200	100.00
Child growth compared to peers	Poor	276	23.0
	Average	552	46.0
	Good	372	31.0
	Total	1200	100.00
Diagnosed as underweight/stunted/wasted	Yes	348	29.0
	No	852	71.0
	Total	1200	100.00
Frequency of illness per month	Rarely	384	32.0
	1–2 times	516	43.0
	3 or more times	300	25.0
	Total	1200	100.00
Nutritional status (health assessment) worker	Normal	612	51.0
	Underweight	240	20.0
	Stunted	216	18.0
	Wasted	132	11.0
	Total	1200	100.00
Anthropometry (summary classification)	Within normal range	660	55.0
	Below normal(any indicator)	540	45.0
	Total	1200	100.00
Immunization status	Fully vaccinated	720	60.0
	Partially vaccinated	300	25.0
	Not vaccinated	180	15.0
	Total	1200	100.00

Table 4.2.2 presents the prevalence of malnutrition among under-five children. The findings showed that 26.0% of the children experienced weight loss within the previous three months, while 74.0% did not. Nearly half of the respondents (46.0%) rated their children's growth as average, whereas 31.0% reported good growth and 23.0% reported poor growth. Overall, 29.0% of the children had been diagnosed as underweight, stunted, or wasted, while 71.0% had no such diagnosis. Regarding illness frequency, 43.0% of the children experienced illness one to two times per month, 32.0% were rarely ill, and 25.0% were ill three or more times monthly. Health worker assessments indicated that 51.0% of the children had normal nutritional status, while 20.0% were underweight, 18.0% were stunted, and 11.0% were wasted. Anthropometric assessment further revealed that 45.0% of the children were below the normal range on at least one nutritional indicator, whereas 55.0% were within the normal range. Additionally, 60.0% of the children were fully vaccinated, while 25.0% were partially vaccinated and 15.0% had not received any vaccination.

4.2.3: Socio-Demographic and Economic Factors (n = 1200)

Variable	Parameter	Frequency	Percentage (%)
Primary occupation of mother/caregiver	Farming	312	26.0
	Trading	348	29.0
	Civil servant	204	17.0
	Artisan	168	14.0
	Unemployed	168	14.0
	Total	1200	100.00
Average monthly household income (₦)	<133,000	420	35.0
	133,000–526,000	396	33.0
	526,000–1,630,000	264	22.0
	≥1,630,000	120	10.0
	Total	1200	100.00
Household size	≤3	204	17.0
	4–6	540	45.0
	≥7	456	38.0
	Total	1200	100.00
Household experiences food shortage	Often	276	23.0
	Sometimes	480	40.0
	Rarely	300	25.0
	Never	144	12.0
	Total	1200	100.00
Income meets child's nutritional needs	Yes	612	51.0
	No	588	49.0
	Total	1200	100.00

Table 4.2.3 presents the socio-demographic and economic characteristics of the respondents. The findings showed that trading was the most common occupation among mothers/caregivers (29.0%), followed by farming (26.0%), while civil servants accounted for 17.0% and artisans and the unemployed each represented 14.0%. More than one-third of households (35.0%) earned less than ₦133,000 per month, whereas only 10.0% earned ₦1,630,000 or more. Household size was predominantly between four and six members (45.0%), followed by households with seven or more members (38.0%). Food shortage was reported to occur sometimes by 40.0% of respondents and often by 23.0%, while only 12.0% indicated they never experienced food shortages. Slightly more than half of the respondents (51.0%) reported that their household income was sufficient to meet their children's nutritional needs, whereas 49.0% stated that it was inadequate.

4.2.4: Feeding Practices (Breastfeeding and Complementary Feeding) (n = 1200)

Variable	Parameter	Frequency	Percentage (%)
Exclusively breastfed for first 6 months	Yes	648	54.0
	No	552	46.0
	Total	1200	100.00
Age of introduction of complementary feeding	Before 6 months	324	27.0
	At 6 months	612	51.0
	After 6 months	264	22.0
	Total	1200	100.00
Frequency of feeding (solid/semi-solid per day)	1–2 times	312	26.0
	3–4 times	624	52.0
	≥5 times	264	22.0
	Total	1200	100.00
Consumption of ≥4 food groups daily	Yes	564	47.0
	No	636	53.0
	Total	1200	100.00
Decision-maker on child's feeding	Mother	780	65.0
	Father	156	13.0
	Grandparent	168	14.0
	Others	96	8.0
	Total	1200	100.00

Table 4.2.4 presents the feeding practices of the respondents. More than half of the children (54.0%) were exclusively breastfed during the first six months of life, while 46.0% were not. Complementary feeding was introduced at the recommended age of six months for 51.0% of the children, whereas 27.0% received complementary foods before six months and 22.0% after six months. The majority of children (52.0%) were fed solid or semi-solid foods three to four times daily, while 26.0% were fed one to two times and 22.0% received five or more meals per day. Slightly more than half of the respondents (53.0%) reported that their children did not consume foods from at least four food groups daily, compared with 47.0% who achieved the recommended dietary diversity. Furthermore, mothers were the primary decision-makers regarding child feeding in 65.0% of households, followed by grandparents (14.0%), fathers (13.0%), and other caregivers (8.0%).

4.2.5: Role of Maternal Education (n = 1200)

Variable	Parameter	Frequency	Percentage (%)
Mother/caregiver received nutrition education	Yes	696	58.0
	No	504	42.0
	Total	1200	100.00
Understanding importance of balanced diet	Yes	780	65.0
	No	420	35.0
	Total	1200	100.00
Maternal education influences food choice	Yes	744	62.0
	No	456	38.0
	Total	1200	100.00
Regular attendance at child health clinics	Yes	720	60.0
	No	480	40.0
	Total	1200	100.00
Maternal education helps recognize malnutrition early	Yes	768	64.0
	No	432	36.0
	Total	1200	100.00

Table 4.2.5 presents the role of maternal education in child nutrition and healthcare practices. The findings showed that 58.0% of mothers or caregivers had received nutrition education, while 42.0% had not. A majority (65.0%) understood the importance of providing a balanced diet for their children, and 62.0% reported that their

level of education influenced their food choices and feeding practices. Furthermore, 60.0% attended child health clinics regularly, while 64.0% indicated that their educational background enabled them to recognize signs of malnutrition at an early stage. Overall, the results suggest that maternal education plays a significant role in promoting appropriate nutritional knowledge, healthy feeding practices, and early detection of malnutrition among under-five children.

4.2.6: Access to Healthcare and Sanitation (n = 1200)

Variable	Parameter	Frequency	Percentage (%)
Distance to nearest health facility	<1 km	312	26.0
	1–5 km	624	52.0
	>5 km	264	22.0
	Total	1200	100.00
Child receives routine growth monitoring	Yes	708	59.0
	No	492	41.0
	Total	1200	100.00
Main source of drinking water	Pipe-borne	288	24.0
	Borehole	504	42.0
	Well	252	21.0
	River/Stream	156	13.0
	Total	1200	100.00
Type of toilet facility	Flush	360	30.0
	Pit latrine	600	50.0
	Open defecation	240	20.0
	Total	1200	100.00
Child experienced diarrhea (past month)	Yes	372	31.0
	No	828	69.0
	Total	1200	100.00

Table 4.2.6 presents respondents' access to healthcare and sanitation facilities. The majority of respondents (52.0%) lived within 1–5 km of the nearest health facility, while 26.0% resided less than 1 km away and 22.0% lived more than 5 km away. Routine growth monitoring was reported for 59.0% of the children, whereas 41.0% did not receive regular growth monitoring. Boreholes were the main source of drinking water for 42.0% of households, followed by pipe-borne water (24.0%), wells (21.0%), and rivers or streams (13.0%). Half of the households (50.0%) used pit latrines, while 30.0% had flush toilets and 20.0% practiced open defecation. Additionally, 31.0% of the children had experienced diarrhea in the month preceding the survey, while 69.0% had not.

4. Discussion

The findings on the prevalence of malnutrition reveal a significant public health concern. Approximately 49.0% of children were malnourished based on health worker assessment, with underweight (20.0%), stunting (18.0%), and wasting (11.0%) being the major forms. This prevalence is comparable to national statistics reported in Nigeria, where undernutrition remains widespread. Similar patterns were documented by World Health Organization (2021), which reported high levels of stunting and underweight among under-five children in low and middle-income countries, including Nigeria.

Socio-economic factors were strongly associated with malnutrition in this study. A large proportion of caregivers were engaged in informal occupations such as trading and farming, which are often characterized by unstable income. Additionally, 35.0% of households earned less than ₦133,000 monthly, and 73.0% experienced food shortages either often or sometimes. These findings are consistent with numerous studies that identify poverty and food insecurity as key drivers of malnutrition. Similar conclusions were drawn by Food and Agriculture Organization (2019), which highlighted that household income and food security are critical determinants of child nutritional status. Household size also played an important role, with 83.0% of households having four or more members. Larger household sizes increase the dependency ratio and reduce the amount of food and care available

per child. This finding aligns with studies such as those by Victora Cesar et al. (2016), which reported higher malnutrition rates in larger households due to resource constraints and competition for food.

Feeding practices in this study were suboptimal and contributed significantly to malnutrition. Although 54.0% of children were exclusively breastfed for six months, this rate is lower than the recommendation by World Health Organization (2021), which advocates universal exclusive breastfeeding. Furthermore, inappropriate timing of complementary feeding was observed in 49.0% of cases. Similar findings were reported by UNICEF (2018), indicating that poor adherence to infant feeding guidelines is a major contributor to child malnutrition globally. Dietary diversity was also inadequate, with 53.0% of children not consuming food from at least four food groups daily. This finding is comparable to studies conducted in low-income settings where limited access to diverse foods results in micronutrient deficiencies. Similar observations were made by Food and Agriculture Organization (2020), which emphasized the importance of dietary diversity in preventing malnutrition.

Access to healthcare and sanitation further influence nutritional outcomes. Although 78.0% of households were within 5 km of a health facility, a significant proportion of children did not receive routine growth monitoring. The reliance on borehole and unsafe water sources, along with the high prevalence of open defecation (20.0%), reflects poor environmental conditions. Comparable findings were reported by World Health Organization (2020), which linked poor water, sanitation, and hygiene conditions to increased risk of diarrhea and malnutrition among children.

5. Conclusion

The study concludes that malnutrition among under-five children remains a significant public health problem. The high prevalence observed is influenced by a combination of socioeconomic challenges, poor feeding practices, inadequate maternal education, and limited access to healthcare and sanitation services.

Based on the study findings, the following recommendations are made:

1. Community health workers should be engaged to conduct home visits, monitor child growth, and provide nutrition counselling at the grassroots level.
2. Provision of safe drinking water and improved sanitation facilities should be prioritized to reduce the incidence of diarrhoea and other infections.
3. Health workers should provide continuous counselling on breastfeeding and complementary feeding during antenatal and postnatal visits.

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