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Infant and Young Child Feeding Practices and Nutritional Status: Evidence from Jos University Teaching Hospital (JUTH).

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Abstract

Optimal infant and young child feeding is central to child survival, growth and development, yet inappropriate breastfeeding and complementary feeding practices remain important contributors to childhood malnutrition. This study assessed feeding practices and nutritional status among children attending the Family Health Clinic and Paediatric Outpatient Department of Jos University Teaching Hospital, Plateau State, Nigeria. A hospital-based cross-sectional design was used. The project reports a final sample of 382 mothers/caregivers and their children, selected by simple random sampling. Data were collected using a structured questionnaire and anthropometric measurements and analysed with SPSS version 22. The results available for manuscript development were descriptive and are therefore presented as frequencies and percentages. Almost all respondents (97.6%) reported breastfeeding their children, 70.2% reported practising exclusive breastfeeding, 89.0% breastfed on demand, and 84.0% had received guidance on exclusive breastfeeding from health personnel. However, 61.0% also reported using breast-milk substitutes or infant formula. Complementary foods were introduced at exactly six months by 36.9% of respondents, while 17.3% introduced them before six months and 20.2% after six months; 25.7% had not yet commenced complementary feeding. Pap was the most common first complementary food (66.5%), and cups and spoons were the commonest feeding mode (63.6%). Dietary patterns were dominated by cereals, with relatively low routine intake of fruits, vegetables and animal-source foods. Anthropometric assessment showed that 75.7% were classified as normal by weight-for-height, 67.5% by weight-for-age, 55.5% by height-for-age and 69.9% by MUAC; 15.5% had moderate acute malnutrition and 14.7% severe acute malnutrition by MUAC. The findings indicate high breastfeeding uptake but important gaps in complementary feeding quality and a substantial burden of undernutrition. Strengthened nutrition counselling, timely complementary feeding and greater dietary diversity are recommended.

Keywords: Infant and young child feeding; breastfeeding; exclusive breastfeeding; complementary feeding; malnutrition; MUAC; Jos; Nigeria.

KEYWORDS: Exclusive breastfeeding, complementary feeding, malnutrition, Moderate Acute Malnutrition (MAM), Severe Acute Malnutrition (SAM), nutritional assessment.

INTRODUCTION

Nutrition during infancy and early childhood has a major influence on survival, physical growth, neurodevelopment and long-term health. The first two years of life are especially

important because nutrient requirements are high while infants and young children are vulnerable to infection, inappropriate feeding and household food constraints. The project notes that malnutrition is associated with a large proportion of child deaths globally and identifies infant and



young child feeding as a major area for improving child survival and healthy development (WHO, 2023; UNICEF, 2022).

Breastfeeding is the foundation of infant nutrition. Early and sustained breastfeeding provides energy, essential nutrients, immune protection and developmental benefits. WHO and UNICEF recommend exclusive breastfeeding for the first six months of life, followed by continued breastfeeding alongside safe and nutritionally adequate complementary foods up to two years and beyond (WHO, 2021; UNICEF, 2021). Evidence cited in the project also links breastfeeding with lower risks of respiratory and gastrointestinal infections and with longer-term benefits for cognition and chronic disease risk (Kramer & Kakuma, 2012; Victora et al., 2016).

At about six months, breast milk alone is no longer sufficient to meet the increasing energy and micronutrient requirements of the growing infant. Complementary foods should therefore be introduced at the appropriate time and should be adequate in quantity, frequency, diversity, texture and safety. Poor complementary feeding may involve introduction too early or too late, low meal frequency, monotonous cereal-based diets, inadequate animal-source foods, or poor feeding hygiene. Such practices can increase the risk of growth faltering and micronutrient deficiencies.

Nigeria continues to experience suboptimal breastfeeding and complementary feeding practices. The project cites the 2018 Nigeria Demographic and Health Survey as reporting exclusive breastfeeding among only 29% of infants, while national and international agencies continue to promote early initiation, six months of exclusive breastfeeding and continued breastfeeding thereafter (NPC, 2018). Despite these efforts, childhood undernutrition remains an important public health problem and regional, socioeconomic and health-service factors may influence feeding behaviour.

Against this background, this study assessed infant and young child feeding practices among mothers/caregivers attending the Family Health Clinic and Paediatric Outpatient Department of Jos University Teaching Hospital (JUTH), Plateau State. The study focused on breastfeeding practices, reported exclusive breastfeeding, complementary feeding patterns and the nutritional status of the children.

Methodology

Study design and setting

A hospital-based cross-sectional study was conducted at the Family Health Clinic and Paediatric Outpatient Department of Jos University Teaching Hospital, Jos North Local Government Area, Plateau State, Nigeria. Jos is the capital of Plateau State in North-Central Nigeria and serves a diverse urban population.

Study population and sampling

The project reports a study population of infants and young children attending the selected child health clinics and a final sample of 382 participants. Simple random sampling was stated as the sampling technique. The child age distribution in the results extended from 0 to 60 months.

Data collection

Data were collected using a structured questionnaire administered to parents/guardians through interview. The questionnaire covered socio-demographic characteristics, breastfeeding practices, complementary feeding, food-consumption patterns and food frequency. The instrument was pre-tested and reviewed by staff of the Dietetics Department before the main study.

Anthropometric assessment

Weight, length/height and mid-upper arm circumference (MUAC) were measured using standard procedures described in the project. Children were weighed with the scale set to zero and weight recorded to the nearest 0.1 kg. Length/height was measured to the nearest 0.1 cm. Nutritional status was reported using weight-for-height, weight-for-age, height-for-age and MUAC classifications.

Data analysis

The project states that data were analysed using SPSS version 22 and that descriptive statistics, Pearson chi-square and Student's t-test were planned. However, the results supplied in the project for manuscript development contain descriptive outputs only. Accordingly, this manuscript reports the available frequencies and percentages and does not invent inferential statistics that were not presented in the source project.

Ethical considerations

The project includes an ethical-approval appendix and describes an informed-consent process in which parents/guardians were informed about the study and their right to decline or withdraw. The approval reference number should be inserted in the final manuscript from the original ethics document.

Results and Discussion

Socio-demographic characteristics

A total of 382 respondents were included. Nearly half of the children (46.6%) were aged 0-12 months and 56.8% were male. Most mothers were aged 26-35 years (61.5%), 94.0% were married, and 86.4% had at least secondary education, including 45.6% with tertiary education. The largest reported monthly household-income category was ₦31,000-₦60,000 (31.2%). These characteristics indicate a predominantly married, relatively young maternal population with substantial formal education, although many households remained within low-to-middle reported income categories.

Characteristic	Frequency	Percent (%)
Child age 0-12 months	178	46.60
Male child	217	56.81
Mother age 26-35 years	235	61.51
Married	359	93.98

Secondary education	156	40.84
Tertiary education	174	45.55
Household income ₦31,000- ₦60,000	119	31.15

Breastfeeding practices

Breastfeeding uptake was very high: 373 respondents (97.6%) reported that they breastfed their child. Among all respondents, 70.2% reported practising exclusive breastfeeding. On-demand breastfeeding was common (89.0%), and 84.0% reported receiving guidance or education on exclusive breastfeeding from health personnel. The highest single breastfeeding-duration category was 13-18 months (31.9%), while only 2.6% reported breastfeeding beyond 24 months. Most respondents (77.2%) reported no breastfeeding difficulty.

The reported exclusive-breastfeeding prevalence is considerably higher than the 29% figure cited from the 2018 Nigeria Demographic and Health Survey (NPC, 2018). The high level of health-worker counselling in this hospital-based sample may have contributed to better reported practice. Nevertheless, 61.0% of respondents also reported using infant formula or another breast-milk substitute. Because the questionnaire does not clearly establish the timing of formula use in relation to the six-month exclusive-breastfeeding period, these two findings should be interpreted cautiously rather than treated as directly contradictory.

Breastfeeding indicator	Frequency	Percent (%)
Breastfed child - Yes	373	97.64
Exclusive breastfeeding - Yes	268	70.16
Breastfed on demand	340	89.00
No breastfeeding difficulty	295	77.23
Received health-worker guidance on EBF	321	84.03
Used infant formula/breast-milk substitute	233	60.99

Complementary feeding practices

Complementary feeding showed a mixed pattern. Of the full sample, 36.9% introduced complementary foods at exactly six months, 17.3% introduced them before six months, 15.7% at 7-9 months and 4.5% after nine months; 25.7% had not yet introduced complementary foods. Pap was the first complementary food for 66.5% of respondents, while only small proportions reported water with baby formula (4.7%) or family foods (3.1%) as the first complementary food. Cups and spoons were the most common feeding mode (63.6%),

compared with feeding bottles alone (14.7%) or a combination of both methods (21.7%). Complementary foods were most often given three times daily (41.6%) or more than three times daily (30.4%).

The finding that only about one-third introduced complementary foods at exactly six months indicates important timing gaps. Introduction before six months can reduce the period of exclusive breastfeeding, while delayed introduction may leave the child unable to meet increasing energy and micronutrient requirements from breast milk alone. The predominance of pap as the first food is consistent with the common use of cereal-based complementary foods in Nigeria, but such foods require nutrient enrichment and dietary diversification to meet the needs of rapidly growing infants.

Complementary-feeding indicator	Frequency	Percent (%)
Not yet introduced	98	25.65
Introduced before 6 months	66	17.28
Introduced at 6 months	141	36.91
Introduced at 7-9 months	60	15.71
Introduced after 9 months	17	4.45
Pap as first complementary food	254	66.49
Cups and spoons as feeding mode	243	63.61
Complementary food three times/day	159	41.62

Types and frequency of complementary foods

The food-frequency results suggest limited dietary diversity. Cereals such as pap and rice were consumed most frequently, with 67.0% reported in the 'over four times daily' category. In contrast, 78.3% reported no daily fruit intake, 64.1% reported no daily vegetable intake and 46.9% reported no daily intake of meat, fish, eggs or chicken. Legumes were more commonly consumed, while processed foods such as cereals, biscuits and noodles were also frequent. Taken together, the pattern suggests heavy reliance on starchy foods and inadequate routine inclusion of fruits, vegetables and animal-source foods. Improving the nutrient density of complementary foods therefore requires practical counselling on affordable local food combinations rather than focusing only on feeding frequency.

Anthropometric status

Anthropometric assessment identified a notable burden of undernutrition. By the project's weight-for-height classification, 75.7% were normal, while 5.2% were mild,

10.5% moderate and 8.6% severe. For weight-for-age, 67.5% were normal and 32.5% fell into mild, moderate or severe categories. Height-for-age showed the largest proportion outside the normal category: 55.5% were normal, while 19.1% were mild, 7.9% moderate and 17.5% severe. MUAC classified 69.9% as normal, 15.5% as moderately acutely malnourished and 14.7% as severely acutely malnourished.

The coexistence of high reported breastfeeding uptake with substantial anthropometric deficits shows that breastfeeding

alone does not eliminate nutritional risk. Nutritional status in young children is influenced by the timing and quality of complementary feeding, illness exposure, household food availability, caregiving practices and other social determinants. The low routine intake of fruits, vegetables and animal-source foods observed in the food-frequency table provides a plausible dietary context for the nutritional deficits, although the cross-sectional design does not establish causation.

Indicator	Normal	Mild/MAM	Moderate	Severe/SAM
Weight-for-height	289 (75.65%)	20 (5.24%)	40 (10.47%)	33 (8.64%)
Weight-for-age	258 (67.54%)	51 (13.35%)	35 (9.16%)	38 (9.95%)
Height-for-age	212 (55.50%)	73 (19.12%)	30 (7.85%)	67 (17.54%)
MUAC	267 (69.90%)	59 (15.45% MAM)	-	56 (14.66% SAM)

Limitations

- The cross-sectional hospital-based design limits causal inference and may not represent feeding practices among all mothers and children in the wider community.
- Breastfeeding and complementary-feeding information was self-reported and is therefore subject to recall and social-desirability bias.
- The project includes children up to 60 months, whereas standard IYCF indicators are primarily designed for children in the first two years of life; this should be considered when interpreting the findings.
- Although the methodology mentions chi-square and t-test analyses, the project results supplied for this manuscript contain descriptive statistics only; inferential associations should not be reported unless the original statistical output is provided.
- The questionnaire does not clearly establish when infant formula was used relative to the period of reported exclusive breastfeeding, limiting interpretation of these two indicators.
- The stated objective on barriers and facilitators is only partially addressed by the presented quantitative results; richer barrier data would be needed for a strong objective-specific analysis.

Conclusion and Recommendation

This study found high reported uptake of breastfeeding among mothers/caregivers attending child health services at Jos University Teaching Hospital. Exclusive breastfeeding was also commonly reported, and most respondents had received breastfeeding guidance from health personnel. However, the high reported use of infant formula, the variable timing of complementary-food introduction, heavy reliance on pap and other cereals, and low routine intake of fruits, vegetables and animal-source foods indicate important gaps in optimal feeding. Anthropometric findings further show that a

substantial proportion of children had evidence of undernutrition, including moderate and severe acute malnutrition by MUAC.

Health professionals should therefore intensify practical counselling on exclusive breastfeeding for the first six months, continued breastfeeding to two years and beyond, and the timely introduction of complementary foods at six months. Nutrition education should emphasize dietary diversity using affordable locally available foods, including legumes, eggs, fish, meat where feasible, vegetables and fruits, while discouraging over-reliance on nutritionally limited cereal preparations and unnecessary breast-milk substitutes. Routine growth monitoring and MUAC screening should be strengthened so that children with moderate or severe malnutrition are identified early and linked to appropriate nutrition care.

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