

Nutritional Status and Dietary Preferences of Pre-School Children in a Southeastern Nigerian Town: Testimony to the Benefit of Breast Feeding, Immunization, and Maternal Education.

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Abstract

Aim: To assess the feeding experiences in infancy, immunization history, and nutritional status of children aged one to five years in a hospital at Umuahia

Methods: The study was hospital based. Children under five years were enrolled for the study after obtaining informed consent from their parents or guardians. The weights of the children were measured by standard methods. Feeding and diet history were documented by means of a pre-validated questionnaire.

Results: Two hundred children (96 boys and 104 girls) participated in the study. Compared to the NCHS reference charts, the mean weights for age of the children were between the 50th and the 75th percentile. All the children were breastfed, 58% (n = 200) of them had exclusive breastfeeding for the first 6 months of life. Bread and tea were the most popular food among the older children.

Conclusion: The children's impressive breastfeeding and immunization histories, as well as their good dietary history, were some of the salient commendable characteristics that might have accounted for the fairly optimal nutritional status of most of these children. Exclusive breast feeding for six months and compliance with children's immunization schedule are certainly laudable contemporary child-rearing practices.

Key words: Children, weight, breastfeeding, immunization, nutritional status.

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I. Introduction

The nutritional status of children has remained a major public health issue in the world.¹ The prevalent global trend has been obesity among children living in industrialized nations, and under-nutrition among those living in developing countries.² The burden of malnutrition and the consequences of malnutrition are enormous. Malnutrition had been found to be directly or indirectly responsible for about 50% of all deaths in children in developing countries.²

Apart from the misery, morbidity, and mortality (note the 3 M's) associated with severe under-nutrition, the malnourished child is at risk of developing defects some of which might remain permanent.³ In particular, under nutrition in childhood can give rise to anatomical defects in adulthood, impaired intellectual development, and lowered resistance to disease. Under-nutrition is also the primary cause of specific nutrient deficiencies that result in xerophthalmia and blindness, scurvy, pellagra, beriberi, muscle wasting, anaemia, goiter, rickets and other problems.⁴ On the other hand, obesity in childhood is associated with adult obesity, the development of the metabolic syndrome, and myriads of other health problems.⁵

Nutritional status could be assessed by subjective clinical evaluation or by the use of anthropometric indicators and reference standards or both.^{6,7,8}

We present in this article the weights, breastfeeding experiences, and a summary of the immunization histories of a cross-section of preschool children in an urban area in Southeastern Nigeria.

II. Methods

Participants

The participants were children of both gender aged 1-5 years and were recruited by simple random sampling from among the children who were brought to the clinic with a fever. Only children who were otherwise well and for whom informed consent was granted by a parent or an adult guardian were enrolled for the study. All the children who participated in the study resided within the town. Children who had been ill for more than a few days, or who had a severe illness, or those who had other complicating illnesses including gastroenteritis (vomiting and diarrhea) or those whose parents or caregivers were unable to supply reliable nutritional history of the child were excluded from the study. Consecutive eligible were recruited after informed consent had been granted until two hundred children were enrolled for the study.

Ethical consideration: The study complied with ethical requirements for studies involving children in line with the Helsinki Declaration and was approved by the Chairman of the Medical Advisory Council of the Federal Medical Centre Umuahia. All the children were attended to by a pediatrician.

Data collection:

A pre-validated in-depth questionnaire was completed on behalf of each child by the parent or guardian of the child. The questionnaire was designed to collect information on the child's age, sex, mother's level of education, and caregiver's occupation, feeding from birth to the time of the study including history of breastfeeding, weaning diet, frequency of eating, and favourite foods. Information on routine immunisation and the socio-economic characteristics of the child's family were also obtained.

Anthropometry

The nutritional status of each child was determined by taking anthropometric measurements based on WHO standard procedures.⁶ The weight of each child was measured twice using a bathroom scale (Hansen, Ireland) and the mean of the two readings recorded.⁹ The scale was pre-tested and re-checked at intervals for accuracy using a known weight.

Data analysis

Data were analyzed using Microsoft word excel and SPSS version 20.0. Descriptive statistics were obtained for the socio- demographic characteristics of the caregivers and children. p-value less than 0.05 was considered statistically significant.

III. Results

The gender and age characteristics of the children in this study were summarized in Table 1. Their age range was 1 to 5 years. The mean age of the boys was 2.44 years and for the girls 2.49 years. Weight for age, an index of underweight or obesity, for each of the respective ages was between the 50th and the 75th percentiles of the NCHS distribution, indicating that the children on the average had optimal weight for age (Table 2).

As shown in Table 3 the mothers of the children were mostly employed (87%) and so had some income of their own. All had some formal education at least up to primary school level. Almost all the children (99%) were up-to-date in routine immunization (Table 2).

Table 4 shows the infant feeding experiences of the children. All the children (n=200) were breastfed with 58% of the children being exclusively on breast milk for six months. The rest of the children (42%) were offered water, cow's milk or cereal along with breast milk before they were 6 months old. Fifty seven per cent of the children (n=200) were weaned between the ages of 12 to 24 months, and 43% were weaned before one year. Weaning diet for 42.5% of the children was cereal fortified with protein, 13% had only cereal, while the rest had various combinations of cereal, adult food, and beverages.

IV. Discussion

Breastfeeding is very commonly practiced among the Ibos of Nigeria and it was not unexpected that all the children were breastfed even if for only a few months. The interesting observation that as much as 58% of the children (n=200) were exclusively breastfed for the first six months of their life suggests that many of the mothers have come to appreciate the benefits of exclusive breastfeeding. Forty three per cent of the children were weaned before the age of one year, which is however, below the World Health Organization's recommendation for exclusive breastfeeding of the infant for the first six months of life and continuing breastfeeding for up to the age of 2 years or more.¹⁰ Our questionnaire did not include inquiry about the HIV status of the subjects or their mothers.

It is noteworthy that 100% of the children in our study were up-to-date in routine immunization, and that most of the mothers were both literate and employed. Most of the mothers of these children were enlightened and had some disburseable income of their own. These indicate that the subjects in our study were probably recipients of above average care. Some studies in peer-reviewed literature point out that maternal income and maternal literacy are good predictors of better nutritional status in children under five in developing countries.^{8, 11-13}

Nonetheless, as Appoh and Krekling had pointed out,¹⁴ the beliefs and practices related to childcare, and the way resources are utilized in the family are important factors in raising well-nourished children.

There was no statistically significant difference ($p > 0.05$) in the weights for the males compared to the females of the same age from the one year olds to the five year olds. However from one year to the next, significant differences ($p < 0.05$) were found in all the measured anthropometric attributes indicating that growth occurred with passage of time.¹⁵

The children's impressive breastfeeding and immunization histories are some of the salient commendable characteristics of these children. These could have been partly because most of the mothers of these children were literate and had some income of their own.

Community based studies would be needed to investigate the nutritional status of both healthy and ill children in the town.

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Table1: Ages of the children according to their gender.

Mean age (Standard deviation)

Boys 2.44 (1.30) years

Girls 2.49 (1.39) years

All the children 2.47 (1.35) years

Number of children according to age and gender:

Age	Boys	Girls	Total
1 yr olds	31	38	69
2 yr olds	22	15	37
3 yr olds	20	23	43
4 yr olds	16	18	34
5 yr olds	7	10	17
Total	96	104	200
Percentage	48%	52%	100%

Table 2: Mean weight for age, weight for height, and height for age of the children compared to the US National Center for Health and Statistics (NCHS) standard⁺.

Gender	Males					Females				
	1	2	3	4	5	1	2	3	4	5
Age (yr)										
Subsample size	31	22	20	16	7	38	15	23	18	10
Weight for age:	10.3	13.7	15.3	17.6	18.8	10.0	13.1	14.9	17.4	19.5
Mean weight at 50th percentile	10.2	12.7	14.4	16.6	18.4	9.5	12.2	13.9	15.6	17.7

+Units of measurement: Weight = kg; Gender distribution $p>0.05$; Age distribution $p<0.05$

Table 3: Maternal Occupation, education, and children’s immunization history

Mother’s occupation:	Immunization Number	%
Civil/public servant	76	38.0%
Trader	30	15.0%
Full time housewife	27	13.5%
Seamstress	23	12.5%
Others	25	13.0%
Mothers having personal income	181	90.5%
Education up to Primary School certificate level for mothers/guardians	200	100%
Immunization history		
Children up to date in immunization	198	99 %
Those not up to date in immunization	2	1%

Table 4: Infant feeding experiences of the children.

Aspect of Feeding:	Number of children	%
<i>Form of breastfeeding:</i>		
Exclusive for 6 months	116	58
Not exclusive for 6 months	84	42
Total	200	100
<i>Age at weaning (years):</i>		
Less than 1	86	43
1-2	114	57
3 and above	0	0
Total	200	100

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