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INFLUENCE OF INFANT FEEDING PRACTICES ON NUTRITIONAL STATUS OF UNDER-TWO CHILDREN

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Abstract: **The objective of this study is to assess the influence of infant feeding practices on nutritional status of under-two children in Ibadan South-West local government area in Oyo state, Nigeria.**

Method: Three hundred and ten mother-child pairs were recruited for the study from selected primary health-care centres in Ibadan South West local government Area. A semi-structured questionnaire was used to collect information on socio-economic characteristics, the infant feeding practices of the children and their nutritional status. Nutritional assessment by WHO criterion (SD-classification) using summary indices of nutritional status: weight-for-age, height-for-age and weight-for-height was done. Normal test of proportion, Chi-square for testing association of nutritional status with different characteristics and risk analysis using odds ratios with 95% confidence intervals was also done.

Results: Among the under-two surveyed, 29.4% were stunted, 7.4% were underweight 3.5% were wasted. Stunting was most prevalent (18.7%) among children aged 6-12 months. Deprivation of colostrum, non-exclusive breastfeeding and improper complementary feeding were found significant (P<0.05) risk factors for stunting, wasting and underweight.Conclusion: Improper complementary feeding, deprivation of colostrum, non-exclusive breastfeeding are significant risk factors for undernutrition among the under-two children. There is need to further promote the benefits of exclusive breastfeeding and timely introduction of complementary foods among young mothers to improve the nutritional status of children.

Keywords: **Exclusive breastfeeding, complementary feeding, colostrum feeding, undernutrition**

I. INTRODUCTION

Adequate and good nutrition is essential for infants and young children for fundamental growth. The period between birth and two years is widely recognized as a critical period because of their higher requirements of energy and nutrient-dense foods to support their rapid growth and physical and brain development [1, 2]. Undernutrition is still a global challenge and still persists more in the low and middle-income countries. This remains a significant problem in Nigeria in spite of global efforts to improve maternal and child health. The fifth round Multiple Indicator Cluster Survey reports that the underweight prevalence increased from 24.2% to 31.5%, stunting prevalence increased from 34.8% to 43.6% while wasting prevalence increased from 10.2% to 10.8% respectively [3]. Infant and young child feeding (IYCF) practices are often multidimensional and age specific. Most times, these feeding practices guidelines are not often followed by mothers and caregivers despite its necessity for survival, growth and development. It has been widely recognized that undernutrition occurs as a result of several behavioural deficits with respect to health and nutrition. Many recent studies have identified the linkage between malnutrition and child feeding practices [4, 5, 6] especially in Nigeria [11, 12, 13]. But very few studies have focused on feeding practices and nutritional status of under-two children. It is therefore important to assess the role of infant feeding practices in etiology of malnutrition and the prevalence of malnutrition in Ibadan-South west local government area. This study was conducted to assess the nutritional status of under- two years children and the association between infant feeding practices and undernutrition in Ibadan South West local government area, Oyo state, Nigeria.

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II. METHODOLOGY

A. Area of study

The study was a descriptive and cross- sectional survey carried out among mothers of infants and young children (age 6 to 24 months) attending Primary Health care centres in the selected local government area. The study was conducted in Ibadan, the capital city of Oyo state, located in the South -West region of Nigeria. Ibadan South west local government area (LGA); one of the five urban LGA was selected and four primary Health care centres were randomly selected for the study. The study sample consisted of all consenting 310 mothers from the immunization clinic days turnout at the various clinics for a period of time. Data collection was done using a semi- structured questionnaire to obtain information on their socioeconomic status, complementary feeding pattern and the nutritional status of the children. The section of the questionnaire on the complementary feeding pattern assessed the initiation of breastfeeding, colostrum feeding, exclusive breastfeeding and complementary feeding.

Anthropometric indices of children (weight and height) measurements were carried out with the use of a standardized instrument to ensure reliability. The weight and height measurements were converted into three summary indices of nutritional status: weight-for-age, height-for-age and weight-for-height. According to World Health Organization (WHO) criterion based on standard deviation (SD) units (termed as Z-scores), children who were more than two standard deviations below the reference median on the basis of weight-for-age, height- for-age and weight-for height indices were considered respectively to be underweight, stunted and wasted. Normal test of proportions (Z-test) to test the significance of difference between proportions and Chi-square test for testing the association between different attributes were used. Risk factor analysis was done using odds ratios (OR) along with their respective 95% confidence intervals (CI) for finding risk factors of undernutrition.

III. RESULTS

One hundred and sixty-one children out of the three hundred and ten mother-child pairs were males representing 46.9% of the total sample. Table 1 shows the mean ages of the children and mothers studied as 11.1± 4.3 and 29.7± 5.7years respectively. The occupation of the household mothers was mostly traders (36.6%) and 29.4% were artisan. 44.0% of the mothers had secondary education while 28% had primary education.

Table 1: Personal Characteristics of Subjects (n=310)

Variables	Percentage
Child's characteristic **Age (months) mean ± standard deviation**	11.1 ± 4.3
Sex	
Male	53.2
Female	46.8
Mother's characteristics Age (years), mean± standard deviation	29.7 ± 5.6
Marital status Divorced	8.1
Married	88.4
Widowed	3.5
Educational level	
None	8.0

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Primary	28.0
Secondary	44.0
Tertiary	13.0
Mother's occupation	
Civil servant	13.9
Company worker	13.9
Trader	36.5
Artisan	29.4
Others	6.5

Infant Nutritional Status

For the overall prevalence of undernutrition among the children, the prevalence of stunting, wasting and underweight are shown in Table 2. The result shows that 29.4% of the children were stunted. Stunting was slightly higher for girls (31.7%) than for boys (27.3%). There was low prevalence of underweight (7.4/%) in the population studied. The figures are higher for girls (7.6%) than boys (7.3%) 9.1% of the children were wasted showing a medium prevalence of wasting within the population. The figure for the girls was higher (4.1%) than the boys (3.6%).

Table 2:Anthropometric indices of children

Variables	**Frequency**	**(%)**
Overall		
Stunting	91	29.4
Wasting	11	3.5
Underweight	23	7.4
Sex Prevalence		
Stunting Male	45	27.3
female	46	31.7
Wasting		
Male	6	3.6
Female	5	4.1
Underweight		
Male	12	7.3
Female	13	7.6

Infant feeding practices were analyzed for their risk on undernutrition using odd ratios along with their respective 95% confidence intervals (Table 3). Deprivation from colostrum, exclusive breast-feeding and proper complementary feeding were the found significant risk of stunting, wasting and underweight at various levels of significance. The proportion of

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stunting among children whose mothers fed them with colostrum (21.6%) who were exclusively breastfed (13.5%)and those who got proper complementary feeding (16.5%) were found to be significantly less than (P<0.05) as compared toproportion of stunting among their respective counterparts. Colostrum deprivation was found bea significant risk of wasting and underweight. The proportion of wasting among children whose mothers deprived them of colostrum(0.3%) was significantly less (P<0.05) than those whose mothers did not deprive themof colostrum (3.5%). Underweight among children who were fed colostrum (6.1%) was significantly less (P<0.01) than those not feed (1.3%).

IV. DISCUSSION

In the present study, the prevalence of stunting, wasting and underweight were 29.4%, 3.5% and 7.4% respectively. This shows a decrease when compared with the Nigerian Demographic and Health Survey data [4]. There was a significant increase in the proportion of stunting and underweight in children (29.8%, 8.3%) from 9-12 months of age and then gradually decreased with an increase in age. Other studies have reported maximum prevalence of undernutrition at this age group among children [5, 6, 7]. This may be attributed to sub-optimal breast-feeding practices and inappropriate complementary feeding habits. More girls were stunted while more boys were underweight [4].

A large percentage of the mothers (82.9%) initiated breastfeeding within 6 hours while only 59.4% feed their babies with colostrums. More than half of the mothers (65.2%) did not practice exclusive-breastfeeding while only 44.8% received proper complementary feeding.

According to a NDHS 2013 report, initiation of breastfeeding and exclusive breastfeeding (0- 6 months) were found to be 30.4% and 17% respectively in the studied area [4]. Discarding of colostrum, non –exclusive breastfeeding and improper complementary feeding were found to be significant risk of stunting. Risk of wasting and underweight were found in case of deprivation of colostrum. Initiation of breastfeeding was not found a significant correlate of nutritional status in this study. This is contrary to a study conducted in India [14] in which risk of stunting was more in the case of late initiation of breastfeeding and deprivation of colostrums. Infant feeding practices influenced nutritional status as assessed by the three indices; height-for-age, weight-for-height and weight-for-age. This is because infant feeding practice has both immediate and long term effects on the nutritional status of children.

This study has a limitation in terms of providing only descriptive information.

Table 3: Nutritional Status of Children in relation to Socio-demographic Characteristics

Infant feeding practices		Nutritional status					
	Total	Stunting		Wasting		Underweight	
	No (%)	No (%)	OR CL	No (%)	OR CL	No (%)	OR CL
Initiation of BF							
Within six hours	257 (82.9)	72 (23.2)	1.00	9 (2.9)	1.00	19 (6.1)	1.00
After six hours	53 (17.1)	19 (6.1)	0.69 (0.519- 1.18)	3 (1.0)	0.61 (0.173- 2.21)	4 (1.3)	0.978 (0.347- 2.76)
Colostrum Feeding							
Yes	184 (59.4)	67 (21.6)	1.00	11 (3.5)	1.00	19 (6.1)	1.00
No	126 (40.6)	24 (7.7)	1.91* (1.07 – 2.40)	1 (0.3)	6.62* (0.84- 1.30)	4 (1.3)	2.72* (0.950- 7.81)
Exclusive BF							
Yes	108 (34.8)	42 (13.5)	1.00	4 (1.3)	1.00	11 (3.5)	1.00
No	202 (65.2)	49 (15.8)	0.69** (1.14- 2.25)	8 (2.6)	0.94 (0.288- 3.03)	12 (3.9)	1.72 (0.783- 3.75)
Proper CF							
Yes	139 (44.8)	51 (16.5)	1.00	5 (1.6)	1.00	13 (4.2)	1.00
No	171 (55.20)	40 (12.9)	1.69** (1.1- 2.40)	7 (2.3)	0.951 (0.308- 2.92)	10 (3.2)	1.73 (0.783- 3.82)
Overall	310 (100)	91(21.4)		12 (3.9)		23 (7.4)	

V. CONCLUSION

This study shows that there is a significant relationship between the nutritional status of children and the adoption of proper infant-feeding practice by their mothers. Discarding of colostrum, non-exclusive breastfeeding and improper complementary feeding were found to be significant risk factors of undernutrition among under-two children.
Nutrition education should be increased among teenage girls, mothers (both young and old) and caregivers on the benefits of early initiation of breastfeeding, timely initiation of complementary foods at six months and increasing the amount and variety of foods and frequency of feeding as the child gets older while maintaining frequent breastfeeding according to the Guidelines of infant and young child feeding practices (IYCF) [8,9,10] using the various means of communication to reach out to them.

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