COMPLEMENTARY FEEDING PRACTICES OF MOTHERS TO THEIR YOUNG CHILDREN (0-2 YEARS) IN DASS LOCAL GOVERNMENT AREA OF BAUCHI STATE, NIGERIA

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ABSTRACT

Background*: Adequate nutrition during infancy and early childhood is fundamental to the development of each child's full human potential. It is well recognized that the period from birth to two years of age is a "critical window" for the promotion of optimal growth, health and behavioral development.* ***Methods:*** *Cross sectional study design was conducted to assess complementary feeding practice of mothers to their young children in Dass Local Government Area of Bauchi State, Nigeria. Random sampling method was used to select 150 mothers to child pair to assess and compare various variables. Data were collected by using semi-structured questionnaire for face to face interview method. Descriptive statistics were used for data analysis.* ***Results:*** *The prevalence of timely initiate of complementary feeding was 6.7% (>6 months), while 74.7% of mothers were initiate complementary before 6 months. A large proportion of the mothers 51(34%) had either no education or Islamic education, while the large proportion (75(50%) received only cereals pap. However, 25 and 15 (16.7 and 10.0%) were either moderate or severely wasted respectively. The large proportion of the children 70(47.6%) were malnourished, while 67(44.6%) were either mild or moderately malnourished and 117(11.3%) were severely malnourished.* ***Conclusion:*** *The study has shown that, insufficient quantities and inadequate quality of complementary food, poor child feeding practices and high rates of infection.* ***Recommendation:*** *Information about importance of timely initiation of complementary feeding should be implemented via information education and behavioral change communications, and integrating with health extension package is recommended.*

Keywords: *Complementary, Feeding Practices, Dass Local Government Area, Young Children.*

INTRODUCTION

Child malnutrition remains a common problem in developing countries. Early growth retardation is associated with a broad range of adverse functional consequences, including delayed motor development and impaired cognitive function and school performance, and malnourished children have a higher risk of infection, ill-health and death [1]. Indeed, recent analyses indicate that as much as one

half of under-five child mortality is associated with malnutrition, caused by under nutrition related to inadequate complementary feeding [2]

The world health organization has defined complementary feeding period as the period during which other foods or liquids are provided along with breast milk and any nutrient containing foods or liquids given to young children [3]. Complementary feeding interventions alone were estimated to prevent almost one fifth of under five children mortality in developing countries [4, 5]. The most crucial time to meet child's nutritional requirements is the first 1,000 days. The child has increased nutritional needs to support rapid growth and development [6]. Improving quality of complementary food has been cited as one of the most cost effective strategies for improving health, reducing morbidity and mortality of young children. Nearly one third of child deaths could be prevented by optimal complementary feeding practices [4, 5, 7].

In many countries faulty complementary feeding practices - primarily nutritionally inadequate and frequently contaminated foods that are introduced too early or too late - are a major contributing factor to infant and young child malnutrition, growth failure, and high morbidity and mortality.[13]Rates of malnutrition usually peak at this time with consequences that persist throughout life. Stunting is seldom reversed in later childhood and adolescence. Inadequate feeding of girl children also affects nutrient stores, subsequent reproductive health, and risk of maternal mortality.[14].Approximately more than 80% continued breast feeding into the child's second and third year in which it can significantly improves child survival and enhancing quality of life. More than 50% of infants aged 6-9 months had delayed introduction of complementary foods [7, 8].

The 6– 11 month period is an especially vulnerable time because infants are just learning to eat and must be fed soft foods frequently and patiently. Care must be taken to ensure that these foods complement rather than replace breastmilk [9]. For older infants and toddlers, breastmilk continues to be an important source of energy, protein, and micronutrients. Therefore, breastfeeding should continue through 24 months and beyond.Energy intake can be increased by increasing breastfeeding frequency, increasing food portion sizes, feeding children more frequently, and/ or providing more energy-dense foods [10]. Micronutrient intake can be increased by diversifying the diet to include fruits, vegetables, and animal products; using fortified foods; and/ or giving supplements. Choosing food combinations that enhance micronutrient absorption is also important.[11]

Longitudinal studies have consistently shown that this is the peak age for growth faltering, deficiencies of certain micronutrients, and common childhood illnesses such as diarrhea. After a child reaches 2 years of age, it is very difficult to reverse stunting that has occurred earlier. The immediate consequences of poor nutrition during these formative years include significant morbidity and mortality and delayed mental and motor development[12].

In the long-term, early nutritional deficits are linked to impairments in intellectual performance, The study therefore, conducted to assess how mother characteristics are associated with practice of complementary feeding.

SUBJECTS AND METHODS
STUDY DESIGN

The study was a cross-sectional descriptive study

STUDY AREA

The study was conducted in Dass local government areas, 51 kilometres South-West of Bauchi state. The local government area has the population of 89,943 as at 2006 census.The study was focused on children (0 – 2) years old in the ten (10) political wards.

STUDY POPULATION

The study concentrated on mothers and their children aged 0 – 2years of age (mother-child pairs) in ten (10) wards of Dass Local Government Area.

INCLUSION AND EXCLUSION CRITERIA

Included were mother-child pairs 0 – 2years old, while mother-child pairs above 2 years old were excluded

SAMPLING PROCEDURE

150 respondents were recruited using stratified sampling. The method was used to select respondents within Dass town,(15) fifteen respondents from each ward. This method was selected to produce effective and non-bias estimate, in which each of the 10 political wards was regarded as each stratum to achieve even sampling. The samples were collected by going to households in each stratum.

SAMPLE SIZE DETERMINATION

Formula: - $N = \dfrac{Z^2 \times P (1 – P)}{d^2}$

Description

N= required sample size,   Z = value of confidence level at 95% (1.96)

P= Estimated prevalence,   d= precision or margin error at 5%
                             (Standard value of 0.05)

$\dfrac{11}{100} = 0.11$

$N = \dfrac{Z^2 \times P (1 – P)}{d^2}$

P=

$$n = \frac{1.96^2 \times 0.11\,(1-0.11)}{0.05^2}$$

$$n = \frac{3.8416 \times 0.11 \times (0.89)}{0.0025}$$

$$n = \frac{0.422576 \times 0.89}{0.0025}$$

=150

INSTRUMENT OF DATA COLLECTION

Data was collected using pretested and validated structured questionnaire, which was administered to the respondents (consented mothers) in their home setting, after informed consent was obtained. The ages of the young children were obtained through the birth certificate issued to their mothers at the hospitals/health centre, while mothers supplied information about babies delivered at home. Data on children's anthropometric status were obtained by measuring their weight and height according to acceptable method.[13]

DATA COLLECTION

Data that collected include socio-economic and demographic data of the parents, nutritional information, complementary feeding practices, and personal information of the child which include age, weight, sex, height/length and mid upper arm circumference (MUAC). The questionnaires were interviewed administered.

DATA ANALYSIS

The data collected were analysed using SPSS version 16.0 for windows, where frequencies, mean proportion, percentages and standard deviation were computed for different variables.

RESULTS

Table 1: Age, Marital status, Income and Education distribution of mothers.

Variables	Frequency	Percentage (%)
Age of mothers		
18-25	77	51.3
26-33	37	24.7
34 and above	36	24.0
Marital Status of mothers		

Married	114	76
Single Parent	36	24
Mother's income	**monthly**	
# 18,000-# 25,000	90	60.9
#26,000-# 35,000	30	20.0
# 36,000and above	30	20.0
Educationalstatus	51	34.0
No educated		
Primary	19	12.7
Secondary	27	18.0
Tertiary	26	17.3
Others	27	18.0
Total	**150**	**100**

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In table 1, 77(51.3%) of mother's age bracket18-25 while114 (76%) had married were revealed. A large proportion of the mothers 51(34%) had either no education or Islamic education, while 19(12.7) had primary education.

Table 2: Complementary feeding practices of mothers

Variables	Frequency	Percentage (%)
Initiation of complementary food		
<3 months	112	74.7
3-6 months	28	18.6
>6 months	10	6.7
Frequency of feeding		
Once	10	6.7
Twice	93	62.0
On demand	47	31.3
Feeding Method		
Bottle feeding	83	55.3
Force feeding	36	24.0

Variables	Frequency	Percentage
Cup and Spoon	31	20.7
Total		**150** **100**

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In table 2, the age of introducing complementary food and number of times the complementary food was given in a day was presented. About all of babies 112 and 28 (74.7 and 18.6%) were being complemented at the age of <3 and 3-6 months respectively, While the large proportion of the babies 93 (62.0%) fed twice in a day. In feeding method, 36 (24.0%) force fed their children as compare to 31(20.7%) that used cups and spoon.

Table: 3   Complementary food characteristics

Variables	Frequency	Percentage
Mode of food		
Home prepared	115	76.6
Commercial	35	23.4
Total	**150**	**100**
Home prepared parameters		
INGREDIENTS		
Millet,Soybeans and groundnut	35	23.3
Maize,Soybeans,groundnut, crayfish and eggs	5	3.3
Millet or Maize alone	75	50
METHOD OF PREPARATION		
Fermentation of Cereals	75	50
Roasting and Fermentation	40	26.6
Mashing	NIL	NIL
Total		**115** **76.6**

Adebusoye et al (2015)

Complementary food characteristics of respondents, only 35 (23.4%) received commercial complementary food while 40 (26.6%) received a double mixers complementary food. However, the large proportion (75(50%) received only cereals pap. Fermentation was the predominantly method of preparation with 75(50%) followed by roasting and fermentation with 40(26.6%).

Table 4: Anthropometry indices of the children

Weight for height (wasting**)**

RANGES	FREQUENCY	PERCENTAGE
Normal (-0.99 and above)	75	50.0
Mild (-1.99 to -1.0)	35	23.4
Moderate (-2.99 to -2.0)	25	16.7
Severe (< - 3.0)	15	10.0

Weight for age (under weight)

Normal (-0.99 and above)	40	26.7
Mild (-1.99 to -1.0)	60	40.0
Moderate (-2.99 to -2.0	40	26.7
Severe (< - 3.0)	10	6.6

Weight for age (stunting)

Normal (-0.99 and above)	67	44.7
Mild (-1.99 to -1.0)	40	27.6
Moderate (-2.99 to -2.0	34	21.3
Severe (< - 3.0)	11	7.3

Head circumference for age

Normal (-0.99 and above)	70	47.6
Mild (-1.99 to -1.0)	38	25.3
Moderate (-2.99 to -2.0	29	19.3
Severe (< - 3.0)	13	8.6

Mid upper arm circumference (MUAC)

Normal (-0.99 and above)	70	47.6
Mild (-1.99 to -2.0)	33	22.0

Moderate (-2.99 to -2.0	30	20.0
Severe (< - 3.0)	177	11.3
TOTAL	**150**	**100**

Adebusoye et al (2015)

The anthropometry indices of the children shown, 25 and 15 (16.7 and 10.0%) were either moderate or severely wasted respectively, while 75 and 35 (50.0 and 23.4%) were between the ranges of normal and mild wasted respectively. However 40 and 60 (26.7 and 40.0%) were within the ranges of normal and mildly underweight. The large proportion of the children 70(47.6%) were malnourished, while 67(44.6%) were either mild or moderately malnourished and 117(11.3%) were severely malnourished

DISCUSSION

The complementary feeding period is a crucial stage in growth of a child and outcome depends on the timing of complementary feeding, food choice, method of preparation of food and feeding patterns. This practice varies in different communities and affected by beliefs, family feeding order, and attitude towards complementary feeding, nutrition, geographic and economic status.

In the current study, majority of the mothers used feeding bottles to feed their infants, which result in complication, this agrees with the finding of (15) that feeding bottle and rubber teats which are difficult to clean are often breeding grounds for germs.

There is evidence that, most of the infants were introduced to complementary food at the early age (<3 months), thereby, increase the risk of infection and development of allergies like eczema and asthma. This is comparable to the findings by (16) who indicate that infants under six months have kidneys and guts that are not mature enough to cope with diverse diet.

The current study shows that majority of food were infants had diarrhea when complementary food were first introduced. This agrees with the finding by (17) stated that weaning food especially cereal gruels are contaminated by Escherichia coli which causes at least 25% of all diarrhea.

However, large proportion of the children received only cereals pap thereby lacking a lot of nutrients at the early age that can lead to nutritional disorders. It is comparable to the finding by (18) whose states that, good weaning food should be rich both in energy and nutrients to prevent malnutrition disorders.

CONCLUSION

The study revealed those commercial fortified food products are often beyond the reach of the poor in the study area. They had little disposable income to purchase the fortified products. The study also found out that, insufficient quantities and inadequate quality of complementary food, poor child feeding practices and high rates of infection such as diarrhea are common in the study

area. Complementary feeding practices and proper care are significant factors that determine the nutritional status of children.

RECOMMENDATION

There is need to support appropriate infant feeding policy and communication strategy framework by Local, State and Federal Governments. Locally available foods should be exploited whenever possible. There should be nutritional intervention and nutrition education to improve complementary feeding practices – mothers should be thought on how to prepare locally enriched complementary foods.

REFERENCE

1. Dewey KG. *Guiding Principles for Complementary Feeding of the Breastfed Child.* PAHO/ WHO, 2003

2. Medhin G, Hanlon C, Dewey M, Alem A, Tesfaye F, Worku B, et al. Prevalence and predictors of undernutrition among infants aged six and twelve months in Butajira, Ethiopia. BMC Public Health. 2010; 10(27):1-15.

3. Carlo A, Tamas D, Fewtrel, M, Goulet O, Kolacek S, Koletzko B, et al. Complementary Feeding: Commentary by European Society for Pediatric Gastroenterology, Hepatology, and Nutrition. Journal of Pediatric Gastroenterology and Nutrition. 2008; 46(1):99–110.

4. UNICEF. Infant and young child feeding, nutrition section program. June 2012. New York. UNICEF.

5. International Baby Food Action Network (IBFAN). Report On the situation of infant and young child feeding in Liberia. The convention on the rights of the child, session 61, September- October 2012. Geneva. IBFAN- GIFA.

6. United Nations Children's Fund. Improving child nutrition: The achievable imperative for global progress. April 2013. New York. UNICEF.

7. Nancy F Krebs, K Michael Hambidge. Complementary feeding: clinically relevant factors affecting timing and composition. Am J Clin Nutr. 2007; 85(suppl): 639–4.

8. Lohman TG,Roche AF,Martorell R.Anthropometric standard reference manual.Human Kinetic Books USA 1988.

9. Engle PL, Bentley M, Pelto G. The role of care in nutrition programmes: current research and a research agenda. Proc Nutr Soc 2000;59:25-35.

10. Martorell R, Kettel Khan L, Schroeder DG. Reversibility of stunting: epidemiological findings in children from developing countries. Eur J Clin.Nutr 1994;S45-S57.

11. Lucy N, Thairu, Gretel H, Pelto, Nigel C, Rollins, Ruth M Bland, Ncamisile N.Sociocultural influences on infant feeding decisions among HIV-infected women in rural Kwa-Zulu Natal, South Africa. Maternal and Child Nutrition. 2005; 1(1):2–10.

12. Federal Ministry of Health, Family Health Department Ethiopia. National Strategy for Infant and Young Child Feeding. April 2004. Ethiopia. Federal Ministry of Health.

13. WHO. *Complementary Feeding: Family Foods for Breastfed Children.* Geneva: World Health Organization, 2000.

14. Brown KH, Dewey KG, Allen LH. *Complementary Feeding of Young Children in Developing Countries: A Review Of Current Scientific Knowledge.* WHO/ UNICEF, 1998.

15 Ward law, M. Smith, M (2009): Complementary nutrition 8th edition MC Grawhill international

16 Weaver, L, (2003): A good start in life breastfeeding is best, but Complementary should be worse.

17 Dewey K. (2001). Nutrition, growth and of the breastfed infant paediatric clinic North AM. 48: 87-104. (Pubmed)

18 Picciano MF. Smicciklas (2000). Nutritional guidance is needed during dietary transition in early childhoods. Paediatric; 106-109-14