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Mothers' Feeding Practice and Nutritional Status of Infants in Selected Primary Health Care Center of Paikoro Local Government Area, Niger State, Nigeria

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ABSTRACT

Background: *Ensuring good health, growth and development of children requires adequate nutrition during infancy and early childhood. Therefore, optimal feeding during the first few years of life provides opportunity for prevention of growth faltering and under-nutrition. Hence, improvement of infant feeding practices for children less than five years should be a high priority globally.*

Objectives: *The objective of this study is to assess the feeding practices of mothers and the nutritional status of infants and young children in some selected Primary Health Care (PHCs) in Paikoro LGA of Niger state, Nigeria*

Methods: *This descriptive cross-sectional study was carried out in some selected Primary Health Centres (PHCs) in Paikoro area of Niger state and a total of 200 mother/child pair were selected using simple random sampling method. Data was collected from mothers using a pre- tested structured questionnaire. The data was analyzed using Statistical Package for Social Sciences (SPSS) (Version 20.0). Tests were statistically significant at* $p \leq 0.05$.

Results: *Majority (of the respondents feed colostrums to their babies. The prevalence of initiation of breastfeeding (78.5%), colostrum consumption (97.5%) and timely introduction of complementary feeding (74.5%) practices were high. The results further revealed 34.0% of the respondents breastfeed on demand while 29.5% were using feeding bottles.*

Conclusion: *The study shows that a very high percentage of the mothers feed colostrums to their children but none breastfed their children to 24 months of age.*

Keywords

Infant, Infant feeding practice, Nutritional status.

Introduction

Poor feeding practices during the first few years of life have both immediate and long-term consequences. It is estimated that improper feeding of children leads to about one-third of the cases of malnutrition worldwide [1]. Ensuring health, growth and development of children requires adequate nutrition during infancy and early childhood therefore, optimal feeding during the first few years of life provides opportunity for prevention of growth faltering and under-nutrition. Hence, Improvement of infant feeding practices for children less than five years should be a high priority globally [2,3]. A global strategy for optimal Infant and Young Child Feeding (IYCF) was set up by World Health Organization (WHO) and United Nations Children's Fund

(UNICEF) in order to reduce malnutrition among the children. The strategy recommends early initiation of breastfeeding within one hour of birth, exclusive breastfeeding for the first six months, and introduction of appropriate, adequate, and safe complementary foods along with continuing breastfeeding up to two years and beyond. Improving infant and young child feeding practices is important to reduce under-nutrition and its consequences.

Breastfeeding and complementary feeding practices can prevent up to 19% of all childhood deaths in low-income and middle- income countries if adequately promoted and practiced [4]. However, questions arise about the level at which current recommendations are implemented. In Nigeria and some other countries in Africa, high use of pre-lacteals (fluids given before initiating breastfeeding at birth) and poor exclusive breastfeeding practices has been reported [5]. It is estimated that fewer than 50% of children less than 6 months of age are exclusively breastfed in low-income countries, where the relative benefits of optimal feeding are greatest. In Nigeria, an estimated 2,300 children less than five years lose their lives daily, in which sub-optimal IYCF practices play a major role, despite a range of policy initiatives to improve (IYCF) practices [6]. It has been reported that Inappropriate IYCF practices account for more than 40,000 disability-adjusted life years in Nigeria by contributing to lost productivity among children less than 5 years [6]. The national study in Nigeria revealed that early initiation of breastfeeding significantly decreased by 4.3% between 1999 and 2013 while exclusive breastfeeding remained unchanged. It also showed that predominant breastfeeding significantly increased by 13.1%, and children ever breastfed declined by 16.4% over time.

Previous reports have shown that non practice of exclusive breastfeeding is a risk factor for a number of diseases, including diarrhea and upper respiratory infections. Feeding practices during infancy are critical for the growth and health of a child during the first two years of life [7] and of importance for the early prevention of chronic degenerative diseases. Progress in improving IYCF practices in the developing world has been reported to be remarkably slow [8] due to several factors. A newborn Nigerian baby has a 30 times higher chance of dying before the age of 5 years than a baby born in the developed, industrialized countries [8]. There is need therefore to focus attention on the promotion of feeding practices at the household level that are beneficial to the survival of children and caregivers in Nigeria. The study is aimed at assessing the feeding practices of mothers and the nutritional status of infants and young children in some selected Primary Health Care (PHCs) in Paikoro LGA of Niger state, Nigeria.

Methods

A cross-sectional study (community based) was conducted among mothers who had children aged between 6 and 23 months.

The study was carried out in Paikoro local governments in Niger State, Nigeria. Niger State is located in the North central of Nigeria with a population figure of 3,954,772. It has twenty-five local government areas (LGA) with Minna as the State capital. Niger State is geo-politically divided into three senatorial districts; Niger East, Niger North, and Niger South Senatorial Districts. Paikoro local government will be selected for the purpose of the study, Participants will be recruited from the communities

A total of 200 children in the age group 6-23 months in Niger State whose mothers gave their consent were included in the study. Respondents were selected using purposive sampling technique. The Primary Health Care centres were selected using purposive sampling technique. Each mother with child between 6-23 months who voluntarily give their consent was selected in a mother/child pair. The eligible respondent for this study were mother with a child that is between 6-23 months who is currently receiving health care services in the sampled health care facility. Instrument used in the study was a pre structure questionnaire. Information on demographic, socio-economic status and nutrition related practices were obtained from the mothers. The anthropometric measurement such as weight (Kg), Height (m) and MUAC (cm) of mother/ child pair was taken. Nutritional indices such as Wasting (Wt for ht), Stunting (Ht for age) and underweight (Wt for age) were used to determine the nutritional status of the children. The nutritional status of the mothers was determined using Body Mass Index (BMI).

Data Analysis

The data collected were be analyzed using Statistical Package for Social Sciences (SPSS) (Version 20.0) and Epi Info Statistical software (vesion 7.1). The results were expressed in frequency and percentages then presented using tables and charts. Associations between education and occupation characteristics and timely initiation of breastfeeding and complementary feeding were determined using cross tabulation.

Result

The socio-demographic characteristics of the Mothers

Table 1 shows the socio – demographic characteristics of respondents. The result shows that most of the respondents (79.5%) were between the age range of 18 and 28years, were married (95.0%), from household size between 4-6 persons (64.5%) and with total number of children 1-3 (80.5%). Approximately one -third of the mothers have no formal education and majority of the selected mothers (31.5%) were civil servants with 9 in 10 of the mothers (91.5%) earned less than the national minimum wage of # 30,000 ($50) monthly (figure1).

Table 1: Social Demographic Characteristics of Mothers.

Variables	Frequency (F)	Percentage (%)
Age of mother		
18-28	159	79.5
29-38	31	15.5
39 and above	10	5.0
Total	**200**	**100**
Marital Status		
Married	190	95.0
Single	9	4.5
Divorced	1	.5
Total	**200**	**100**
Household size		

4-6 persons	129	64.5
7-9 persons	45	22.5
10-12 persons	13	6.5
13-15 persons	5	2.5
>15 persons	8	4.0
Total	**200**	**100**
No. Of Children		
1-3 children	161	80.5
4-6 children	35	17.5
>6 children	4	2.0
Total	**200**	**100**
Age of last child		
6-9 months	131	65.5
10-13 months	47	23.5
14-17 months	16	8.0
18-21 months	4	2.0
>21 months	2	1.0
Total	**200**	**100**
Occupation of Mothers		
Civil servant	63	31.5
Trader	56	28.0
Farming	21	10.5
Craftsman	16	8.0
Full house wife	43	21.5
Police	1	.5
Total	**200**	**100**
Education level of Mothers		
No formal education	61	30.5
Primary uncompleted	14	7.0
Primary completed	27	13.5
secondary uncompleted	19	9.5
Secondary completed	51	25.5
Post secondary	18	9.0
Post graduate education	10	5.0
Total	**200**	**100**

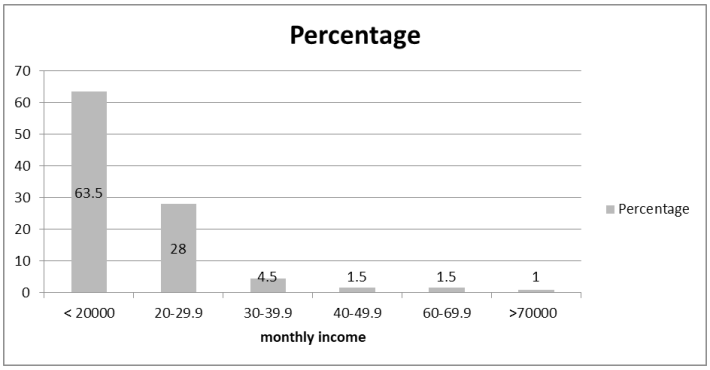

Figure 1: Monthly income (Naira) of the Respondents.

The breastfeeding practices of the respondents are presented in Table 2. The result shows that breastfeeding is a common practice among the Mothers. Majority of the respondents (96.5%) are still breast feeding, initiated breastfeeding within one hour of delivery (78.5%), fed baby with colostrums (97.5%), breastfeed more than 8 times (58.0%) while 34.0% of the respondents breastfeed on demand.

Table 2: Breastfeeding Practice of Among the Mothers.

Variables	Frequency	Percentage (%)
Ever breastfeed		
Yes	200	100.0
No	0	0.0
Total	**200**	**100**
Still breast feeding		
Yes	193	96.5
No	7	3.5
Total	**200**	**100**
When breastfeeding was initiated		
Within 30mins	126	63.0
Within 1 hour	31	15.5
12hrs	29	14.5
48hrs	14	7.0
Total	**200**	**100**
Feed the baby with colostrums		
Yes	195	97.5
No	5	2.5
Total	**200**	**100**
If no, why		
Not good and dirty	5	2.5
Not applicable	195	97.5
Total	**200**	**100**
No of times breastfeed per day		
3-5 times	12	6.0
6-8 times	4	2.0
More than 8 times	116	58.0
On demand	68	34.0
Total	**200**	**100**
Give anything before initiating breast feeding		
Yes	21	10.5
No	179	89.5
Total	**200**	**100**
If yes, what do you give		
Plain water	12	57.14
Glucose	3	14.29
Honey	6	28.57
Total	**21**	**100**
Reason give anything before initiating breast milk		
Tradition and custom	11	52.38
Mother in law asked to give	10	47.62
Total	**21**	**100**
Reason for stopping at 24months		
Start working	154	77.0
New pregnancy	44	22.0
Mother-in-law	2	1.0
Total	**200**	**100**

The Sanitation, Hand washing and Food Storage Practices among Mothers

Table 3 shows most (48.0%) of the respondents use woods as their source of energy for cooking, 16.5% of the respondents use gas, while the least (6.0%) use electricity. Most (27.5%) of the respondent use private well as a source of drinking water, 16.5% of the respondents use public well, 16.0% of the respondents use tank water while the least of the respondents (1.5%) use river/lake.

Majority (45%) of the respondents use bush as a means of refuse disposal, 24% of the respondents use refuse dump, the least (2.5%) use other method. More than half (61.5%) of the respondents use pit toilet, 14.5% of the respondents bush while the least (5.0%) use VIP latrine. 6.5% of the respondents always wash their hands with soap, 90% sometimes wash their hands with soap while 3.5% never wash their hands with soap before preparing the food. Majority (56.5%) of the respondents always wash fruits before feeding the babies, 38.5% sometimes wash fruits before feeding the babies and 5.0% never wash the fruits before feeding the babies.

Table 3: The Sanitation, Hand washing and Food Storage Practices among the Mothers.

Variables	Frequency (F)	Percentage (%)
Source of drinking water		
Tap water inside house	11	5.5
Tap outside	18	9.0
Public tap	32	16.0
Tank water	10	5.0
Private well	55	27.5
Public well	33	16.5
River/lake	3	1.5
Buy water	8	4.0
Borehole	30	15.0
Total	**200**	**100**
Toilet		
Bush	29	14.5
Pit	123	61.5
VIP latrine	10	5.0
WC	38	19.0
Total	200	100
Household food storage		
No means	79	39.5
Refrigeration	63	31.5
Others	58	29.0
Total	200	100
Wash hand with soap		
Always	13	6.5
Sometimes	180	90.0
Never	7	3.5
Total	200	100
Wash fruits		
Always	113	56.5
Sometimes	77	38.5
Never	10	5.0
Total	200	100

Bottle Feeding Practices among Mothers

Table 4 shows that 29.5% of the respondents have bottle-fed their babies while 70.5% of the respondents did not bottle-feed their babies. 17.0% of the respondents introduced bottle feeding while the babies where between 0-2 months, 35.6% of the respondents introduced the bottle feeding while the babies where between 3-5 months then 47.4% of the respondents introduced bottle feeding while the babies where between 6-8 months. 1.70% of the respondents bottle feed once per day, 5.09% of the respondents bottle feed twice per day, 35.6% of the respondents bottle feed 3-4 times per day, 28.8% of the respondents bottle feed 5-6 times per day, 17.0% of the respondents bottle feed 7-8 times while 11.8% of the respondents bottle feed more than 8 times per day.

Table 4: Bottle Feeding Practices among Mothers.

Variables	Frequency	Percentage (%)
Ever use bottle feeding		
Yes	59	29.5
No	141	70.5
If yes, when do you start		
0-2 months	10	17.0
3-5 months	21	35.6
6-9 months	28	47.4
Total	**59**	**100**
Total	**200**	**100**
Sterilizing Feeding Bottle		
Always	11	18.6
Sometimes	21	35.6
Never	27	45.8
Total	**59**	**100.0**
Use boiled water for drinking and preparing milk formula		
Always	13	22.0
Sometimes	40	67.8
Never	6	10.2
Total	**59**	**100**
No times feed with bottle per a day		
Once	1	1.7
Twice	3	5.1
3-4 times	21	35.6
5-6 times	17	28.8
7-8 times	10	17.0
> 8 times	7	11.8
Total	**59**	**100**

Complementary Feeding Practices among Mothers

Complementary feeding practices among mothers are summarized in Table 5. To meet the physiological needs of a growing child introduction of complementary foods at 6 months. In this present study, the findings revealed that 95% introduced water before 6 months with 72.3% doing so before 4 months. However, majority of the children (74.5%) received complementary foods between 5 and 6 months while only 10% of mothers start complementary feeding above 6 months in compliance with WHO recommendation. The most popular complementary foods consumed by the children was cereals (40%), followed by roots and tuber, legumes and milk at 25%,15 % and 10% respectively. The meat, fruits and vegetables were the least consumed food groups among the children.

Table 5: Complementary Feeding Practices among Mothers.

Variables	Frequency	Percentage (%)
Give water to baby		
Yes	191	95.5
No	9	4.5
Total	**200**	**100**
If yes, at what age		
< 1 month	22	11.5
1-2 months	71	37.2
3-4	45	23.6

5-6	24	12.6
>6	29	15.1
Total	**191**	**100**
Introduction of complementary Foods		
1-2 months	2	1.0
3-4 months	20	10.0
5-6 months	149	74.5
6 and above	20	10.0
Not yet	9	4.5
Total	**200**	**100**
Types of complementary food used		
Cereals	80	40.0
Root and tubers	50	25.0
Legumes	30	15.0
Milk	20	10.0
Meat	10	5.0
Fruits and vegetables	10	5.0
Total	**200**	**100**

Nutritional status assessment of mother / child pair

The nutritional status of infants and mothers were assessed and is presented in Table 6. Overall, majority of the children (71.5%) had normal weight for age. The underweight prevalence among the children was 24.5%, of whom 17.5% were moderately underweight and 7.0% severely underweight while 4.0% of the children were overweight. The study also shows that majority of the children (65.5%) have normal height for age. The prevalence of stunting was 34.5%, one-fifth of the children were moderately malnourished and the rest (14.5%) severely malnourished. Most of the children (91.0%) had normal for weight for height. The prevalence of Global Acute Malnutrition (GAM) (WHZ<-2) and of Severe Acute Malnutrition (SAM) expressed in z-scores, according to WHO, 2006 growth standards indicated 9% for GAM and 1.5% SAM. The study further revealed that 5.0% of the mothers are underweight, 57.0% of the mothers are normal, 23.5% of the mothers are overweight while 14.0% of the mothers were obese.

Table 6: Nutritional Status of Infants and Mothers.

Variables	Frequency	Percentage (%)
Weight for Age		
Normal	143	71.5
Moderate Underweight (WAZ <-2>-3)	35	17.5
Severe Underweight (WAZ<-3)	14	7.0
Overweight (WAZ>+3)	8	4.0
Height for Age		
Normal	131	65.5
Moderate Stunting (HAZ<-2>-3)	40	20.0
Severe stunted (HAZ<-3)	29	14.5
Weight for Height		
Normal	182	91.0
Moderate Wasting (WHZ<-2>-3)	15	7.5
Severe wasted (WHZ<-3)	3	1.5
MUAC of the children		
Severe acute malnutrition (MUAC<-11.5 cm)	5	2.5
Moderate acute malnutrition (MUAC>11.5-<12.5)	11	5.5
Normal (MUAC>12.5)	184	92.0
BMI status (kg/m²) of mothers		
Underweight	10	5.0
Normal	115	57.5
Overweight	47	23.5
Obese	28	14.0

Relationship between the BMI status and Age of the Mothers

Table 7 shows that the relationship between the Body Mass Index and the Age of the mothers. The study showed that both overweight and obesity were more prevalent among mothers aged between 29-38 than any other age ranged. However, there was no association found between the age of mothers and their nutritional status at $p<0.05$.

Table 7: Relationship between the BMI status and Age of the Mothers.

Age of mothers	BMI STATUS				
	Underweight	Normal	Overweight	Obese	P-Value
18-28	0 (0.0%)	20 (6.6%)	2 (3.0%)	1 (3.6%)	0.363
29-38	8 (80.0%)	85 (82.4%)	34 (80.3%)	20 (71.4%)	
39-48	2 (20.0%)	10 (11.0%)	11 (16.7%)	7 (25.0%)	
Total	**10 (100.0%)**	**115 (100.0%)**	**47 (100.0%)**	**28 (100.0%)**	

Occupation as a determinant factor of feeding practice among mothers

Relationship between breastfeeding practices and occupation is presented in Table 8. It was observed in this present study that initiation of breastfeeding within 30mins was highest (28.5%) among the civil servants and followed by traders (13.0%). It was also observed that most of the respondents that introduced complementary feeding before 4months were traders while the greater percentage of civil servant introduced complementary foods between 5 and 6 months. Table 10 further shows that initiation of breastfeeding (p=0.00), prelacteal feeding (p=0.008) and timely introduction of complementary foods were significantly associated with mother occupation.

Education as a Determinant factor feeding practice among Mothers

Table 9 shows the education as a determinant factor of feeding practice. It was observed that among the respondents that initiate breastfeeding within 30mins, majority (27.5%) obtained post-secondary education, followed by those with complete secondary education 12.5%, then, those with no school, 8.0%. Among the respondents that initiate breastfeeding within 1hr those with complete secondary school has 6.0%, followed by those with post-secondary, 5.0%. It was observed in this study that most of the respondents that introduced complementary feeding before 4months were those with complete secondary education while the greater percentage of those with post-secondary education introduced complementary foods between 5 and 6 months.

Discussion

This study shows that breastfeeding is a common practice among the respondents with all of them (100%) having breastfed their infants and majority (96.5%) was still breastfeeding at the time of

Table 8: Relationship between Occupation Feeding Practices among Mothers.

Variables	Occupation					Total	p-value
	Civil Servant	Trader	Farming	Craft man	Full House Wife		
When Breastfeeding Was Initiated							
Within 30mins	57 (28.5%)	26 (13.0%)	15 (7.5%)	9 (4.5%)	19 (9.5%)	126 (63.0%)	
Within 1 Hour	4 (2.0%)	8 (4.0%)	2 (1.0%)	4 (2.0%)	10 (5.0%)	28 (14.0%)	0.00
12h	0 (0.0%)	19 (9.5%)	2 (1.0%)	1 (0.5%)	9 (4.5%)	31 (15.5%)	
48hrs	2 (1.0%)	4 (2.0%)	2 (1.0%)	2 (1.0%)	5 (2.5%)	15 (7.5%)	
Total	63 (31.5%)	57 (28.5%)	21 (10.5%)	16 (8.0%)	43 (21.5%)	200 (100.0%)	
Prelacteal Feeding							
Yes	2 (1.0%)	7 (3.5%)	0 (0.0%)	2 (1.0%)	10 (5.0%)	21 (10.5%)	
No	61 (30.5%)	50 (25.0%)	21 (10.5%)	14 (7.0%)	33 (16.5%)	179 (89.5%)	0.008
Total	63 (31.5%)	57 (28.5%)	21 (10.5%)	16 (8.0%)	43 (21.5%)	200 (100.0%)	
Time of Introduction of complementary foods							
< 1 Month	0 (0.0%)	2 (1.0%)	0 (0.0%)	1 (0.5%)	0 (0.0%)	3 (1.5%)	
1-2 Months	0 (0.0%)	3 (1.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (1.5%)	
3-4 Months	2 (1.0%)	10 (5.0%)	2 (1.0%)	0 (0.0%)	6 (3.0%)	20 (10.0%)	
5-6 Months	57 (28.5%)	35 (17.5%)	14 (7.0%)	10 (5.0%)	33 (16.5%)	149 (74.5%)	0.006
6 And Above	4 (2.0%)	5 (2.5%)	4 (2.0%)	5 (2.5%)	4 (2.0%)	22 (11.0%)	
6	0 (0.0%)	2 (1.0%)	1 (0.5%)	0 (0.0%)	0 (0.0%)	3 (1.5%)	
Total	63 (31.5%)	57 (28.5%)	21 (10.5%)	16 (8.0%)	43 (21.5%)	200 (100.0%)	

Table 9: Education as Factor that Determines Breastfeeding of the Mothers Attending Some Selected Primary Health Care in Paikoro Local Government Area, Niger State.

	Education level							Total	P-value
	No formal education	No school	Primary uncompleted	Primary completed	Complete secondary	Post secondary	Post graduate education		
When Breastfeeding Was Initiated									
Within 30mins	6(3.0%)	16 (8.0%)	6(3.0%)	13 (6.5%)	25 (12.5%)	55 (27.5%)	5 (2.5%)	126 (63.0%)	
Within 1 Hour	2 (1.0%)	0 (0.0%)	2 (1.0%)	0 (0.0%)	12 (6.0%)	10 (5.0%)	2 (1.0%)	28 (14.0%)	
12h	8 (4.0%)	0 (0.0%)	4 (2.0%)	1 (0.5%)	15 (7.5%)	2 (1.0%)	1 (0.5%)	31 (15.5%)	0.00
48hrs	2 (1.0%)	0 (0.0%)	0 (0.0%)	5 (2.5%)	6 (3.0%)	2 (1.0%)	0 (0.0%)	15 (7.5%)	
Total	67 (33.5%)	16 (8.0%)	31 (15.5%)	19 (9.5%)	39 (19.5%)	20 (10.0%)	8 (4.0%)	200 (100.0%)	
Give Anything Before Initiating Breast Milk									
Yes	7 (3.5%)	0 (0.0%)	2 (1.0%)	6 (3.0%)	4 (2.0%)	0 (0.0%)	2 (1.0%)	21 (10.5%)	
No	60 (30.0%)	16 (8.0%)	29 (14.5%)	13 (6.5%)	35 (17.5%)	20 (10.0%)	6 (3.0%)	179 (89.5%)	0.06
Total	**67 (33.5%)**	**16 (8.0%)**	**31 (15.5%)**	**19 (9.5%)**	**39 (19.5%)**	**20 (10.0%)**	**8 (4.0%)**	**200 (100.0%)**	
Timely introduction of complementary Family Food									
Less Than 1 Month	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (1.5%)	0 (0.0%)	0 (0.0%)	3 (1.5%)	
1-2 Months	1 (0.5%)	0 (0.0%)	0 (0.0%)	2 (1.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (1.5%)	
3-4 Months	2 (1.0%)	2 (1.0%)	4 (2.0%)	2 (1.0%)	10 (5.0%)	0 (0.0%)	0 (0.0%)	20 (10.0%)	0.00
5-6 Months	6 (3.0%)	14 (7.0%)	27 (13.5%)	11 (5.5%)	27 (13.5%)	60 (30.0%)	4 (2.0%)	149 (74.5%)	
6 And Above	4 (2 .0%)	0 (0.0%)	0 (0.0%)	4 (2.0%)	5 (2.5%)	8 (4.0%)	4 (2.0%)	25 (12.5%)	
Total	67 (33.5%)	16 (8.0%)	31 (15.5%)	19 (9.5%)	39 (19.5%)	20 (10.0%)	8 (4.0%)	200 (100.0%)	

the study. This is lower than the 98.7% reported for breastfeeding mothers in Port Harcourt [9].

Early initiation is highly recommended because it does not only save life, bond the mother and child but also helps to stop postpartum bleeding. In this study, 78.5% of infants were put to breast within one hour after delivery in compliance with WHO recommendation. This result is higher than that recorded by Atimati and Adam, [10] who reported that 44.5% practice early initiation in Egor Local Government Area of Edo state; this is because of their good educational status and their occupation.

The results obtained in this research show that a good number of the respondents (97.5%) feed their infants with colostrums and this corresponds with the findings of Ibrahim et al. [11] which revealed that colostrums was important, nutritive and essential. Majority of the respondents practice good hygienic practice while preparing complementary food for their infant. This is higher than 24%

reported in Nasarawa [12].

Most of the respondents (74.5%) in present study introduce complementary food to their infants when they are between 5-6 months. This was not in line with the findings of Ibrahim [11] where early introduction of complementary feeding was obtained and this was attributed to a strong belief that breast milk was not sufficient and hence the need to start complementary foods.

Poor nutritional status has been found to be significantly associated with the introduction of complementary feeding before age six months [13]. In the present study it shows that the nutritional status of the infants is poor with the 24.5% of the infants been underweight, 34.5% and 9% of the infants were stunted and wasted respectively. This can be attributed to the following factors or practices observed among the mothers. Firstly, early introduction of water by mothers (72.%) coupled with facts that the water sources are most unhygienic (uncovered well). Secondly, is the type of complementary foods given to the children, most of which are cereal based characterized by low protein, low energy density, low micronutrients and high bulk and therefore of low nutritive value. The third factor is the untimely introduction of complementary foods for example majority of traders introduced complementary food to the children when they are less than 4 months. The fourth factor is the unhygienic practices such as poor waste and refuse disposal among the mothers with most of them using pit toilet and bush as a method of refuse disposal. These can be sources of contamination during food preparation and can serve as a breeding place for mosquitoes leading to infectious disease (diarrhea and abdominal parasite) that can ultimately lead to malnutrition. Finally, use of bottle feeding is still a common practice among the mothers (30%) with its attendant consequences such as infectious disease that in turn cause malnutrition in children. Generally the results of this study is consistent with Akter et al. [14] and Islam et al. [15] which had shown positive association between untimely introduction of complementary foods and stunting and other forms of malnutrition. Occupation and education of mothers were observed to positively associated with initiation of breastfeeding, prelacteal feeding and time of introduction of complementary foods ($p<0.05$) which is consistent with the findings of Olatona et al. [16].

A study in Cameroon shows that the level of underweight, stunting and wasting among infants was high and was related to poor complementary feeding as observed in the study [17]. In a study from Limpopo district in South Africa, the level of underweight (7%), stunting (18.9%) and wasting (7%) were very low compared to this study [18]. This may be related to the difference in the pattern of complementary feeding.

Conclusion

The study shows that a very high percentage of the mothers feed colostrums to their children but none breastfed their children to 24 months of age. Type of complementary food, time of introduction of the complementary food, sanitation and hygiene practices and bottle feeding practice is found to be the main cause of poor nutritional status among the infants whose mothers were attending the primary health care centres in Paikoro Local Government Area of Niger state.

Recommendation

Base on the findings, I therefore recommend that there should be emphasis on the education of the female gender. Women should be more enlighten and empowered, through special out-reach programmes that will improve their livelihood. The healthcare providers should be able to educate the mothers on the importance of proper hygiene and good nutrition so as to tackle the problem of poor nutrition among the infants.

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