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BREAST FEEDING PRACTICES AND NUTRITIONAL STATUS OF UNDER-FIVE CHILDREN

AT BABCOCK UNIVERSITY STAFF SCHOOL OGUN STATE, NIGERIA

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Abstract

Infant feeding practices is a major determinant of a child's growth and development, therefore continuous assessment of individuals in different group setting is paramount. This study was aimed at assessing the feeding practices and nutritional status of infants from 2 to 5years of age. A cross sectional survey was carried out using a semi-structured questionnaire on (1.) Socio-demographic characteristics of the mothers (2.) The breastfeeding practices (3) Anthropometric measurements (4.) Nutrients intake (24- hour dietary recall) Information was obtained from the mothers. A total of 100 respondents (infants) participated in this study. 58% of the mothers were between 30-34 years, 95% married with monogamous family setting, 95% of them were Christians and 89% had tertiary education. 91% breastfed their infants for the first 6 months, 74% practiced exclusive breastfeeding. About 8% of male and 2% of female were wasted, 2% of male and 6% of female were stunted, and 8% male and 4% female were underweight. The respondents did not meet their energy requirements, the protein requirements was met by all age groups, and only the respondents that were 5 years old did not meet their vitamin A requirements. Iron , calcium and Ascorbic acid intake were lower than the requirements. There was a positive significant ($P<0.05$) association between the anthropometric indices of the respondent and their mother's educational level, also majority (74%) of the respondents who practiced exclusive breastfeeding had anthropometric indices that were above normal. The nutritional status of most of the respondents were not adequate.

Keyword: Breast feeding, nutritional status, under five children

Introduction

According to the World Health Organization an infant is a child that is younger than one year of age [1].

Breastfeeding is the normal way of providing young infants with the nutrients they need for healthy growth and development. Exclusive breastfeeding is the feeding of an infant with breast milk only, to the exclusion of all other foods including water, during the first 6 months of life [2], it is very important to ensure and maintain both physical and mental health. Breastfeeding is one of the oldest practices known to mankind. For almost all infants, breastfeeding remains the simplest, healthiest and least expensive feeding method that fulfills the infant's needs. It is considered as the most complete nutritional source for infants because breast milk contains the essential fats, carbohydrates, proteins, and immunological factors needed for infants to thrive and resist infection in the formative first year of life [3].Exclusive breastfeeding is recommended by WHO for each newborn up to six months of age and the 'innocent declaration' emphasize that breastfeeding should be for at least two years. Breastfeeding has many benefits both to mother and child; it confers both short-term and long-term benefits to the child. It reduces infections and mortality among infants, improves mental and motor development, and protects against obesity and metabolic diseases later in the course of life [4]. The center for disease control and prevention found out that exclusive breastfeeding (EBF) in the first six months of life and continued breastfeeding from 6 to 11 months has been identified as the single most effective preventive intervention in reducing child mortality, with the potential of saving 1.3 million lives annually. Studies have shown that children who were breastfed for the first 6 months rather than formula-fed children have a small but significant advantage in cognitive ability [5].

Complementary feeding is defined as the process when breast milk alone is no longer sufficient to meet the nutritional requirements of infants therefore other foods and liquids are needed along with breast milk [6]. The transition from exclusive breastfeeding to complementary feeding covers the period from 6-24 months of age, even though breastfeeding may continue till two years of age and beyond. This is a critical period of growth during which nutrient deficiencies and illnesses contribute globally to higher rates of under nutrition among under five children. The complementary feeding pattern plays a very important role in the growth and development of the child [7].

Malnutrition has been responsible, directly or indirectly, for 60% of 10.9 million deaths annually among children under five, over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life [8]. Malnutrition during the first 2 years of life causes stunting, leading to the adult being several centimeters shorter than his or her potential height [9]. There is evidence that adults who were malnourished in early childhood have impaired intellectual performance [10]. Early nutrition deficit are also linked to long-term impairment in growth and health, hence the reason for this study.

Materials and methods

The research was carried out in Babcock University Staff School, Ilishan Remo, and Ogun state, Nigeria. The study focused on infants (2-5 years). A total of 100 infant students of Babcock University Staff School participated.

Ethical consideration

Consent was obtained from the school (BUSS) authority for the study, and also from the parents/guardian of the respondents.

Data collection

A semi-structured questionnaire in line with the objectives of the study was used to collect information from the mothers. The questionnaire consisted of 4 parts which included: (1.) Socio-demographic characteristics of the mothers (2.) The breastfeeding practices (3) Anthropometric measurements (4.) Nutrients intake (24 hour dietary recall)

Anthropometric measurement: Weight was measured using a digital Omron scale. **Height** was measured using a height meter for infants. **Head circumference** was taken with a device that did not be stretched (flexible metal tape measure). **Mid-Upper Arm Circumference** was taken with the use of a MUAC tape, measured at the left upper arm, at the mid-point between the tip of the shoulder and the tip of the elbow

The data collected were analyzed using statistical package for social sciences (SPSS) version 22.0. The socio-demographics characteristics of the respondents, the feeding practices of the infants, their nutritional status was analyzed using the frequency and percentage counts.

RESULTS

Socio-demographic characteristics of the mothers: A total of 100 mothers participated in this study. 58.0% of the mothers were between 30 and 34 years. 95.0% were married and from monogamous family. 64.0% had between 1 and 2 children while 36.0% had between 3 and 4 children. 55.0% had child spacing of between 1 and 2 years while 89.0% had tertiary education.

Education level of the mothers: 31% of the mothers had Bachelor of Science degree (BSc) and 31% of them also had Master's degree (MSc), while 7% of them had Doctor of philosophy (PhD), 9% of them had higher national diploma (HND), 11% had national Diploma (ND), 5% of them had secondary school degree (SSCE) and 2% of them had no formal education.

Breast feeding practices: 91.0% of the mothers reported that they breastfed their babies for the first 6 months, however 74.0% practiced Exclusive Breastfeeding. 15.0% did not continue breastfeeding after 6 months.

Anthropometric characteristics of the respondents: The mean weight for male was 15.14±3.17 and female was 14.96±3.39. The mean head circumference for male was 50.10±1.76 and for female was 49.14±1.6. The mean mid-upper arm circumference for male was 16.58±1.07 and female was 16.78±1.31 but there was no significant difference ($p > 0.05$)

Association between mother's educational level and breastfeeding practices: There was a positive0 association ($p<0.05$) between the mother's educational level and breastfeeding practice. 68% of the mothers with tertiary education practiced exclusive breast feeding.

Relationship between the height, weight, head circumference and age of the respondents by gender: 4% of male and 2% of female respondents (2 year old), were moderately wasted. 2% of male (4 year old) were severely wasted. 2% of male respondents (5 year old) were moderately wasted. 8% of male (2 year old) were moderately stunted. 6% of male and 4% female respondents (4 year old) were severely stunted, while 8% of male respondents (5 year old) were moderately stunted. 2% of female respondents (5 year old) were severely stunted. 2% of male and 2% of female respondents (4 year old) were severely underweight, 6% of male and 2% of female respondents (5 year old) were moderately underweight. 2% of male (4 year old) were moderately undernourished.

Mean nutrient intake of the respondents by gender: The mean calorie for male was 798.32±262.302 and female was 892.73±153.13. The mean protein for male was 22.55±15.63 and female 24.63±6.72. The mean carbohydrate for male was 153.27±48.93 and female was 131.13±18.9. The mean dietary fiber for male was 6.55±6.88 and female was 2.38±0.52. The mean fat for male was 13.00±11.96 and for female was 26.25±10.22. The mean vitamin A for male was 1012.73±2773.59 and for female was 308.63±135.62. The mean vitamin C for male was 18.18±9.61 and for female was 6.88±3.79. The mean calcium for male was 88.09±63.95 and for female was 48.00±39.50.

Mean nutrient intake of the respondents by mother's educational status: The mean calorie for secondary education was 773.44±139.51 and for tertiary education was 858.03±244.53. The mean protein for secondary education was 17.83±5.98 and for tertiary education was 25.21±13.70. The mean carbohydrate for secondary education was 151.00±25.13 and for tertiary education was 141.93±44.19. The mean dietary fiber for secondary education was 3.67±2.16 and for tertiary education was 5.14±6.36. The mean fat

for secondary education was 10.33±12.03 and for tertiary education was 21.07±12.31. The mean vitamin A for secondary education was 148.83±131.29 and for tertiary education was 914.50± 2436.59. The mean vitamin C for secondary education was 17.33±8.50 and for tertiary education was 12.50±2436. The mean folate for secondary education was 157.57±94.45 and for tertiary education was 111.07±96.61. The mean iron for secondary education was 9.33±3.39 and for tertiary 7.71±4.38.

Mean nutrients intake of the respondents: The mean calorie intake of the respondents was between 913.77±334.47 and 803.5±9.01. The mean protein intake of the respondents was between 28.60±21.06 and 21.80±8.17. The mean calcium intake if the respondents was 82.60±99.67. The mean iron intake of the respondents was between 8.80±6.22 and 6.80 and 3.56. The mean vitamin A of the respondents was between 2058.80±4083.75 and 312.60±241.76. The mean ascorbic acid intake of the respondents was between 15.00±14.00 and 19.00±7.91.

Association between the mother's educational status and their children's anthropometric status: 2% of the respondents whose mothers had tertiary education were moderately underweight, 2% were severely underweight while 85% were normal. There was a significant difference ($P<0.05$) in the weight for age of the respondent based on their mother's educational level. 2% of the respondents whose mothers had no formal education were normal. 4% of the respondents whose mothers had secondary education were moderately stunted, while 1% was normal. 4% of the respondents whose mothers had tertiary education were moderately stunted, 6% were severely stunted. 2% of the respondents whose mothers had secondary education were moderately wasted. 2% of

the respondents whose mothers had tertiary education were moderately wasted, 2% were severely wasted and 85% were normal. There was a significant difference (P<0.05) in the weight for height of the respondents based on their mother's educational level.

Association between the respondents' anthropometric status and their practice of exclusive breast feeding (%): 4% of the respondents whose mothers practiced exclusive breast feeding were moderately wasted, 1% was severely wasted. 25% of the respondents whose mothers did not practice exclusive breastfeeding were normal, 1% was above normal. There was no significant difference (P>0.05) in weight for height of the respondents based on their practice of exclusive breastfeeding. 4% of the respondents whose mothers practiced exclusive breastfeeding were moderately stunted, 5% were severely stunted, 65% were normal, 74% were above normal. 4% of the respondents whose mother did not practice exclusive breastfeeding were moderately stunted, 1% was severely stunted, 21% were normal, 26% were above normal. There was no significant difference (P>0.05) in the height for age of the respondents based on their practice of exclusive breastfeeding. 2% whose mothers practiced exclusive breastfeeding were moderately underweight, 2% were severely underweight, 70% were normal, and 74% were above normal. 2% of the respondents whose mother did not practices exclusive breastfeeding were moderately underweight, 24% were normal, 24% were above normal. There was no significant difference (P>0.05) in the weight for age of the respondents based on their practices of exclusive breastfeeding. 1% of the respondents whose mother practiced exclusive breastfeeding was moderately malnourished, 73% were severely malnourished. 26% of the respondents whose mothers did not practice exclusive breastfeeding were severely malnourished.

Association between the respondents' anthropometric status and their breastfeeding practices

4% of the respondents who were fed with only breast milk were moderately wasted, 1% was severely wasted, 67% were normal. 73% of the respondents who were fed with breast milk and water were normal, 1% was above normal. 7% of the respondents who were fed with breast milk and infant formula were normal. 1% of the respondents who was fed with only infant formula was normal. There was no significant difference (P>0.05) in the weight for height of the respondents based on their breastfeeding practices. 4% of the respondents who were fed with only breast milk were moderately stunted, 5% were severely stunted, 65% were normal. 4% of the respondents who were fed with breast milk and water were moderately stunted, 1% was severely stunted, 13% were normal. 7% of the respondents who were fed with breast milk and infant formula were normal. 1% of the respondents who was fed with only infant formula was normal. There was no significant difference (P>0.05) in the height for age of the respondents based on their breastfeeding practices. 2% of the respondents who were fed with only breast milk were moderately underweight, 2% were severely underweight, 70% were normal. 2% of the respondents who were fed with breast milk and water were moderately underweight, 16% were normal. 7% of the respondents who were fed with both breast milk and infant formula were normal. 1% who was fed with only infant formula was normal. There was no significant difference (P>0.05) in the weight for age of the respondents based on their breastfeeding practices.

Discussion

In this study, 58% of the mothers were between 30-34 years which is similar to the report of [11], where majority of the mothers were between 30-34 years. 95% of the mothers were married and 64% of them had between 1 and 2 children with 1-2 years of child spacing. 95% of them were Christians with tertiary education. This result differs from the work of [12] in Abuja were the women had more of secondary education. Majority (91%) claimed to have breastfed their children for the first 6 months but only 74% of them practiced exclusive breastfeeding which is higher than that of [13] who reported that only 40% practiced exclusive breastfeeding. The high percentage in this study might be due to the level of education of the mothers. However, [13] found that most of the mothers were aware of exclusive breastfeeding but did not practice it. 8% of male and 2% of female were wasted, 2% of male and 6% of female were stunted. 8% male and 4% female were underweight. This result is higher than that of [14] in Tanzania where there was a higher prevalence of underweight among female (6.1%) than male infants (4.2%), also in stunting, females were 8.1% and male were 4.9%. The respondents did not meet their energy requirements, this is different from that of [15]. The respondents met their protein requirements for their different ages. The respondents did not meet the requirements for calcium, iron, vitamin A, this agrees with the work of [16], who reported that the respondents did not meet their daily requirements of some nutrients. Mothers with tertiary educational status affected the anthropometric indices of the respondents positively. 74% of the respondents who practiced exclusive breastfeeding were above normal for anthropometric indices.

Conclusion

This study shows that the educational level of the mothers had a positive effect on the anthropometric indices of the respondents, also majority (74%) of the respondents who practiced exclusive breastfeeding had anthropometric indices that were above normal.

Recommendations

References

1. World Health Organization (2013). Who is an infant. Available from: https://www.who.int

2. World Health Organization, Exclusive breastfeeding. Available from: http://www.who.int/nutrition/topics/exclusive-breastfeeding/en/. Accessed 13 Feb, 2017

3. Okafor I.P, Olatona F.A, Olufemi O.A (2014). Breastfeeding practices of mothers of young children in Lagos, Nigeria. Nigerian Journal of Pediatric 41(1) 43-47

4. Gareth J, Richard W.S, Robert E.B, Zulfiqar A. B, Saul S. M. (2003). How many child deaths can we prevent this year? The Lancet vol 362: 65-71

5. Michaelsen K.F, Lotte L, Erik L.M. (2009). Effect of breastfeeding on cognitive function. Breast-feeding: early influences on later health, Springer Science 199-215.

6. World Health Organization 2019

7. Ashwinee A.R, Deepak P, Vaishali P.(2014) a study of breastfeeding and complementary feeding practices with emphasis on misconceptions amongst the women with under two year children in rural area. Int J Med Res Health Sci. 3(4): 851-855.

8. Shreyash J.G, Naresh G, Anjali M, kantharia S.L (2014).Impact of Feeding practices and nutritional status of children. International journal of medical Sciences and Public Health. Volume 3(11):1338-1342

9. Martorell R, Kettel Khan L, Schroeder DG. (1994) Reversibility of stunting: epidemiological findings in children from developing countries. European Journal of clinical Nutrition, 58 (Suppl.1): S45-S57

10. Pollitt E, Gorman K.S, Engle P.L, Rivera J.A, Martorell R (1995). Nutrition in early life and the fulfillment of intellectual potential. The journal of nutrition, 125:1111S-1118S.

11. Ezenduka P.O, Ndie E.C, Nwankwo C.U. (2018). Weaning Practices among Breastfeeding mothers Local Communities of Enugu State Nigeria. Clinics Mother Child health, an open access journal. Volume 15, issue 2, 1000293.

12. Egenti N. B., Adamu D.B Chieke H.N and Adogu P.O.U. (2018) Exclusive breast feeding among women in rural suburds of Federal Capital Territory, Abuja, Nigeria. International Journal of Medical Research and Health Sciences 7 (1) : 57-64

13. Aliyu I, Duru C, Lawal T.O, Mohammed A (2014). Breastfeeding and weaning practices among Nigerian women. Journal of medical investigations and practices, volume 9, issue 4.pg140-145

14. John G. S., Stella C.K., James E. L.(2013) Feeding Practices and Nutritional Status of Infants in Morogo Municipality, Tanzania. Tanzania Journal of Health Research 15(3):1-7

15. Poličnika R., Pokornb, D., Kulnikc D., Mičetić-Turkc D., and Hlastan-Ribičd C., Energy and nutrient intake among pre-school Children in central Slovenia.

16. Okoroigwe F.C and Okeke E.C (2009). Nutritional status of preschool children aged 2-5 years in aguata L.G.A of anambra state, Nigeria. International journal of nutrition and metabolism, volume 1 (1), pp 009-013

TABLES

Table 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE MOTHERS

VARIABLES	FREQUENCY (F)	PERCENTAGE (%)
Mother's Age (Years)		
20 – 24	6	6.0
25 – 29	24	24.0

30 – 34	58	58.0
35 and above	12	12.0
MARITAL STATUS		
Single	5	5.0
Married	95	95.0
FAMILY SETTING		
Monogamous	95	95
Polygamous	5	5
NO OF CHILDREN		
1 – 2	64	64.0
3 – 4	36	36.0
SPACING BTW CHILDREN		
1 – 2	55	55.0
3 – 4	21	21.0
5 – 6	2	2.0

Only 1 child	22	22.0
RELIGION		
Christianity	95	95.0
Islam	5	5.0
LEVEL OF EDUCATION		
No Formal Education	2	2.0
Secondary Education	5	5.0
Tertiary Education	89	89.0
Others	4	4.0
Total	100	100.0

Table 2: EDUCATION LEVEL OF THE MOTHERS

VARIABLES	FREQUENCY (F)	PERCENTAGE (%)
LEVEL OF EDUCATION		
No formal education	2	2.0
SSCE	5	5.0

ND	11	11.0
BSc	31	31.0
HND	9	9.0
MSc	31	31.0
PhD	7	7.0
Others	4	4.0
Total	**100**	**100.0**

TABLE 3: BREAST FEEDING PRACTICES FOR THE RESPONDENTS

Question	**Frequency**	**Percentage**
Did you breastfeed the baby for the first 6 months?		
Yes	91	91.0
No	9	9.0
How did you breastfeed your baby?		

Only breast milk	74	74.0
Breast milk and water	18	18.0
Both breast milk and infant formula	7	7.0
Only infant formula	1	1.0
Practice of Exclusive Breast Feeding		
Practiced Exclusive Breast Feeding	74	74.0
Didn't practice EBF	26	26.0
Did you continue breastfeeding after 6 months		
Yes	85	85.0
No	15	15.0
Total	**100**	**100.0**

TABLE 4: ANTHROPOMETRIC CHARACTERISTICS OF THE RESPONDENTS

Variables	Male	Female	p-value
Age (Yrs)	3.26±1.139	3.24±1.08	.928

Age (Months)	39.12±13.67	38.88±12.96	.928
Weight (kg)	15.14±3.17	14.96±3.39	.785
Height (cm)	95.28±9.15	94.52±10.37	.698
Height (m)	0.95±9.15	0.94±0.10	.712
Head Circumference	50.10±1.76	49.14±1.69	.001*
MUAC	16.58±1.07	16.78±1.31	.406

Table 5 Association between mother's educational level and breastfeeding practices

Classification	**Practiced EBF**	**Didn't practice EBF**	**Total**	**p-value**
Edu Status	F (%)			
No formal education	2 (2.7)	-	2 (2.0)	0.04*
Secondary education	1 (1.4)	4 (15.4)	5 (5.0)	
Tertiary education	68 (68.0)	21 (21.0)	89 (89.0)	
Others	3 (4.1)	1 (3.8)	4 (4.0)	
Total	**74 (100.0)**	**26 (100.0)**	**100 (100.0)**	

*p<0.05 significant

There is a statistically significant association (p<0.05) between the mother's educational level and breastfeeding practice.

TABLE 6: RELATIONSHIP BETWEEN THE HEIGHT, WEIGHT, HEAD CIRCUMFERENCE AND AGE OF THE RESPONDENTS BY GENDER.

Age (Yrs)	**Male**		**Female**		**p-value**
Weight/height	Moderately Wasted <-2	Severely wasted <-3	Moderately Wasted <-2	Severely wasted <-3	
2	2 (4.0)	-	1 (2.0)	-	
3	-	-	-	-	
4	-	1 (2.0)	-	-	.66
5	1 (2.0)	-	-	-	
Total	3 (6.0)	1 (2.0)	1 (2.0)		

Height/age	Moderately Stunted	Severely Stunted	Moderately Stunted	Severely Stunted	
2	4 (8.0)	-	-	-	
3	-	-	-	-	
4	-	3 (6.0)	-	2 (4.0)	.003*
5	4 (8.0)	-	-	1 (2.0)	
Total	8 (16.0)	3 (6.0)		3 (6.0)	
Weight/age	Moderately Underweight	Severely Underweight			
2	-	-	-	-	
3	-	-	-	-	.001*
4	-	1 (2.0)	-	1 (2.0)	
5	3 (6.0)	-	1 (2.0)	-	
Total	3 (6.0)	1 (2.0)	1 (2.0)	1 (2.0)	
Age/HdC	Moderate Undernutrition	Severe Undernutrition			

2	-	-	-	-	
3	-	-	-	-	.522
4	1 (2.0)	-	-	-	
5	-	-	-	-	

P<0.05

TABLE 7: MEAN NUTRIENT INTAKE OF THE RESPONDENTS BY GENDER

NUTRIENTS	MALE	FEMALE	T-VALUE	P-VALUE
		Mean±SD		
Calorie (kcal)	798.36±262.302	892.73±153.13	-.907	.377
Protein (g)	22.55±15.63	24.63±6.72	-.351	.730
Carbohydrate (g)	153.27±48.93	131.13±18.95	1.21	.244
Dietary fiber (g)	6.55±6.88	2.38±0.52	1.70	.108
Fat (g)	13.00±11.96	26.25±10.22	-2.53	.022*
Vitamin A (mcg)	1012.73±2773.59	308.63±135.62	.712	.486
Vitamin C (mg)	18.18±9.61	6.88±3.79	3.16	.01*
Vitamin B1 (mg)	0.27±0.47	0.01±0.32	1.64	.120

Vitamin B2 (mg)	0.09±0.302	0.13±0.35	-.23	.824
Vitamin B3 (mg	4.64±2.66	1.88±1.36	2.68	.016*
Folate (mg)	175.45±83.62	53.25±71.25	3.34	.004*
Vitamin B12 (mg)	0.27±0.47	0.46±0.16	-2.21	.041*
Calcium (mg)	88.09±63.95	48.00±39.50	1.56	.137
Phosphorus (mg)	166.64±94.14	136.25±87.82	.714	.485
Sodium (mg)	666.55±655.63	1721.50±904.31	-2.96	.009*
Potassium (mg)	386.27±199.01	223.63±99.63	2.12	.049*
Zinc (mg)	4.00±2.05	3.75±0.46	.336	.741
Iron (mg)	10.09±3.56	5.25±3.24	3.03	.007*
Magnessium (mg)	66.55±22.30	42.63±15.68	2.60	.019*

P<0.05

TABLE 8: MEAN NUTRIENT INTAKE OF THE RESPONDENTS BY MOTHER'S EDUCATIONAL STATUS

NUTRIENTS	Secondary Edu	Tertiary Edu	F-VALUE	P-VALUE
		Mean±SD		

Calorie	773.44±139.51	858.03±244.53	6.19	.442
Protein	17.83±5.98	25.21±13.70	1.57	.226
Carbohydrate	151.00±25.13	141.93±44.19	.218	.646
Dietary fiber	3.67±2.16	5.14±6.36	.300	.591
Fat	10.33±12.03	21.07±12.31	3.34	.089
Vitamin A	148.83±131.29	914.50±2436.59	.574	.459
Vitamin C	17.33±8.50	12.50±9.86	1.09	.311
Vitamin B1	.17±.41	.14±.36	.017	.898
Vitamin B2	.10±.31	.14±.36	.900	.355
Vitamin B3	4.17±2.23	3.21±2.64	.595	.450
Folate	157.57±94.45	111.07±96.61	0	.333
Vitamin B12	.17±.41	.57±.51	0	.105
Calcium	76.83±41.48	71.43±63.14	.989	.851
Phosphorus	148.50±69.29	69.29±97.14	2.91	.868
Sodium	748.00±796.552	1219.64±942.72	.037	.298
Potassium	354.00±153.01	313.07±193.29	.028	.652

Zinc	3.33±.516	4.07±1.77	1.15	.337
Iron	9.33±3.39	7.71±4.38	.210	.432
Magnessium	61.33±17.36	55.43±24.64	.975	.603

P<0.05

Table 9: Nutrient intake of the respondents by age

Nutrients/Age	**Age (yrs)**	**Energy (kcal)**	**Protein (g)**	**Calcium (mg)**	**Iron (mg)**	**Vitamin A (mg)**	**Thiamin (mg)**	**Riboflavin (mg)**	**Niacin (mg)**	**Ascorbic Acid (mg)**	**Zinc (mg)**
Mean daily intake	2	**803.5± 99.01**	21.80± **8.17**	45.6± **21.50**	6.80± **3.56**	312.60 **±241.76**	0.33± **0.25**	0.14± **0.11**	3.19± **1.69**	9.20± **4.03**	3.60± **0.55**
FAO/WHO/UNU requirement values		1250	14.5	450	8.5	400	0.5	0.8	8.6	20	5.5

% intake of requirement		64.28	150.34	10.13	80	78.15	66.0	17.5	37.09	46.0	65.45
Mean daily intake	3	785.34 **±276.43**	19.60± **10.33**	79.00 **±32.23**	8.60± **3.21**	156.20 **±137.86**	0.31± **0.18**	0.11± **0.06**	3.21± **1.35**	19.00 **±7.91**	3.40± **0.55**
FAO/WHO/UNU requirement values		1250	14.5	450	8.5	400	0.5	0.8	8.6	20	5.5
% intake of requirement		62.83	135.17	17.56	101.18	39.05	60.0	13.75	37.21	95.0	61.82
Mean daily intake	4	828.01 **±126.35**	22.00± **6.12**	85.00 **±49.23**	8.60± **3.78**	211.60 **±125.09**	0.41± **0.31**	0.30± **0.21**	3.71± **2.51**	12.60 **±9.61**	3.60± **0.55**
FAO/WHO/UNU requirement values		1550	17.5	450	9	400	0.7	1.10	11.20	20	6.5
% intake of requirement		53.42	125.71	18.89	95.56	52.9	58.57	27.27	33.04	63.0	55.38
Mean daily intake	5	913.77 **±334.47**	28.60± **21.08**	82.60 **±99.67**	8.80± **6.22**	2058.80±**4083.75**	0.45± **0.46**	0.23± **0.29**	4.53± **3.98**	15.00 **±14.00**	4.80± **2.95**
FAO/WHO/UNU requirement values		1550	17.5	450	9	400	0.7	1.17	11.20	20	6.5

% intake of requirement	58.95	163.43	18.36	97.78	514.7	64.29	19.66	40.45	75	73.85

Source: Energy and protein requirement. Report of a joint FAO/WHO/UNU Expert consultation.

Technical Report Series (724).

WHO, Geneva, (1985).Requirements of ascorbic acid, Vitamin D, Vitamin B12, folate and iron.

WHO Report No. 452 (1970). Requirements of Vitamin A, iron, folate and Vitamin B12, Report of a joint FAO/WHO Expert consultation. Food and Agriculture Organization of the United Nations, Rome (1988). Requirements of Vitamin A, thiamin, Riboflavin, WHO Report No 62 (1967) and Calcium requirement FAO/WHO report No. 230 (1962).

Zinc requirement, WHO (1996)

Table 10: Association between the mother's educational status and their children's anthropometric status

Classifications	**Underweight**			**Normal**	**Total**	**p-value**
	Moderately	**F (%)**	**Severely**	**F (%)**	**F (%)**	
No formal Education	0 (0)		0 (0)	2 (2.0)	2 (2.0)	
Secondary Education	2 (2.0)		0 (0)	3 (3.0)	5 (5.0)	0.01*
Tertiary Education	2 (2.0)		2 (2.0)	85 (85.0)	89 (89.0)	
Others	0 (0)		0 (0)	4 (4.0)	4 (4.0)	

*P<0.05

Classifications	**Stunting**			**Normal**	**Total**	**p-value**
	Moderately	**F (%)**	**Severely**	**F (%)**	**F (%)**	
No formal Education	0 (0)		0 (0)	2 (2.0)	2 (2.0)	
Secondary Education	4 (4.0)		0 (0)	1 (1.0)	5 (5.0)	0.00*
Tertiary Education	4 (4.0)		6 (6.0)	79 (79.0)	89 (89.0)	

Others	0 (0)	0 (0)	4 (4.0)	4 (4.0)
Total	8 (8.0)	6 (6.0)	86 (86.0)	100 ()

Classifications	**Wasting**			**Normal**	**Total**	**p-value**
	Moderately	**F (%)**	**Severely**	**F (%)**	**F (%)**	
No formal Education	0 (0)		0 (0)	2 (2.0)	2 (2.0)	
Secondary Education	2 (2.0)		0 (0)	3 (3.0)	5 (5.0)	
Tertiary Education	2 (2.0)		2 (2.0)	85 (85.0)	89 (89.0)	0.01*
Others	0 (0)		0 (0)	4 (4.0)	4 (4.0)	
Total	4 (4.0)		2 (2.0)	94 (94.0)	100 (0)	

*P<0.05

Table 11: association between the respondents' anthropometric status and their practice of exclusive breast feeding (%).

Variable	**Wasting**		**Normal**	**Above Normal**	**Total**	**P-value**
	Moderately	**Severely**				
Practiced EBF	4 (4.0)	1 (1.0)	69 (69.0)	-	74 (74.0)	.202
Didn't Practiced EBF		--	25 (25.0)	1 (1.0)	26 (26.0)	
Total	**4 (4.0)**	**1 (1.0)**	**94 (94.0)**	**1 (1.0)**	**100**	

				(100.0)	
	Stunting		**Normal**	**Total**	
	Moderately	**Severely**			
Practiced EBF	4 (4.0)	5 (5.0)	65 (65.0)	74 (74.0)	.249
Didn't Practiced EBF	4 (4.0)	1 (1.0)	21 (21.0)	26 (26.0)	
Total	**8 (8.0)**	**6 (6.0)**	**86 (86.0)**	**100 (100.0)**	
	Underweight		**Normal**	**Total**	
	Moderately	**Severely**			
Practiced EBF	2 (2.0)	2 (2.0)	70 (70.0)	74 (74.0)	
Didn't Practiced EBF	2 (2.0)	-	24 (24.0)	24 (24.0)	.385
Total	4 (4.0)	2 (2.0)	94 (94.0)	94 (94.0)	
	Malnourished		**Total**		
Practiced EBF	1 (1.0)	73 (73.0)	74 (74.0)		
Didn't Practiced EBF	-	26 (26.0)	26 (26.0)		.740
Total	1 (1.0)	99 (99.0)	100 (100.0)		

*p<0.05

Table 12: Association between the respondents' anthropometric status and breastfeeding practice

Breastfeeding	**Wasting**	**Normal**	**Above**	**Total**	**P-**

practice	F (%)		F (%)	Normal F (%)	F (%)	value
	Moderately	Severely				
Only breast milk	4 (4.0)	1 (1.0)	69 (69.0)	-	74 (74.0)	
Breast milk & water	-	-	17 (17.0)	1 (1.0)	18 (18.0)	.705
Both breast milk and infant formula	-	-	7 (7.0)	-	7 (7.0)	
Only infant formula	-	-	1 (1.0)	-	1 (1.0)	
Total	4 (4.0)	1 (1.0)	94 (94.0)	1 (1.0)	100 (100.0)	
	Stunting F (%)		**Normal F (%)**	**Above Normal F (%)**	**Total F (%)**	**P-value**
Only breast milk	4 (4.0)	5 (5.0)	65 (65.0)	-	74 (74.0)	
Breast milk & water	4 (4.0)	1 (1.0)	13 (13.0)	-	18 (18.0)	
Both breast milk and infant formula	-	-	7 (7.0)	-	7 (7.0)	**.323**
Only infant formula	-	-	1 (1.0)	-	1 (1.0)	
Total	8 (8.0)	6 (6.0)	86 (86.0)	-	100	

					(100.0)	
		Underweight F (%)	**Normal F (%)**	**Above Normal F (%)**	**Total F (%)**	**P-value**
Only breast milk	2 (2.0)	2 (2.0)	70 (70.0)	-	74 (74.0)	
Breast milk & water	2 (2.0)	-	16 (16.0)	-	18 (18.0)	
Both breast milk and infant formula	-	-	7 (7.0)	-	7 (7.0)	**.718**
Only infant formula	-	-	1 (1.0)	-	1 (1.0)	
Total	4 (4.0)	2 (2.0)	94 (94.0)	-	100 (100.0)	

***p<0.05**