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Determinants of maternal literacy and nutritional status among children under 5 years in Umunneochi L.G.A, Abia State, Nigeria

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Abstract

Purpose: The purpose of the study was to analyze the determinants of maternal literacy and nutritional status of children 0-5 years in Umunneochi LGA, Abia state, Nigeria.
Methodology: Random and convenience sample techniques were used to collect data from 210 respondents with the use of a well-structured questionnaire. The study employed descriptive statistics and adopted the Likert scale to assess the child feeding practices of mothers, the level of nutritional knowledge of the mothers and the nutritional status of children under five years.
Findings: The findings revealed that the acceptable practices for child feeding were giving colostrum, prelacteal feeding, late introduction of optimal complementary foods, initiation of solid and semi-solid foods, late initiation of breast feeding and continuing to breastfeed for two years. The study also discovered that as common practice, mothers initiated exclusive breastfeeding as soon as the baby was born, rarely gave water to children under the age of six months and introduced complementary food once the baby developed teeth. At a 5% level of probability, the correlation analysis discovered a strong positive ($r = 0.2034$) correlation between education and nutritional status of mothers in the study which calls for promotion of maternal literacy and policy intervention to young mothers, particularly on child nutrition improvement.
Unique contribution to theory, practice and policy: In addition, the health and community services sectors can promote the use of community-based food and utilization forms for ease of acceptability among mothers. Future interventions should focus on improving food access and availability for enhanced diet diversification for the rising population.

Key words: *Mothers, Education, Nutrition, feeding practices, Infants and correlation*

Introduction

The scourge of under-five malnutrition is on the increase globally and in Nigeria, with the attendant child mortality facing our society. Studies have pointed out that the nutritional status of children is poor especially in communities with low-income group, (Ene-Obong *et al.*, 2017). The low-income groups are characterized to have heavy workload, poor education, and poor nutrient intake. Nutrition and health are one of the priority issues identified for governments to achieve education target. Maternal literacy is the cognitive & social skills that determine a mother's motivation and ability to act on information (Renkert & Nutbeam, 2002). These skills are used to understand basic literacy skills, reading and numeracy as well as personnel information. The basic literacy skills are the essential foundation for health literacy.

Nutritional status strikes the balance between the intake of nutrients and the expenditure of these in the processes of growth, reproduction, and health maintenance. Nutritional status assessment can be directed at a variety of aspects of nutrition due to the complexity and individualized nature of this process. The acronym "ABCD" stands for anthropometric measurement, biochemical or laboratory tests, clinical indicators, and dietary assessment, and it is commonly used to analyze nutritional status (Quandt, 2020). Child nutrition plays a critical role in the health or death of infants and children, children's nutritional status is critical because it influences their health, physical growth and development, academic performance, and life progress. Under nutrition and poor health from preventable causes disproportionately affect the well-being of millions of people in the developing world (Oyira, & Opiah, 2019). Factors at individual, household and community level, or a combination of these factors, may contribute to poor nutrition, hence health status. More than 3.5 million women and children under age five in developing countries die each year due to the underlying cause of under nutrition (Development Initiatives, 2018)

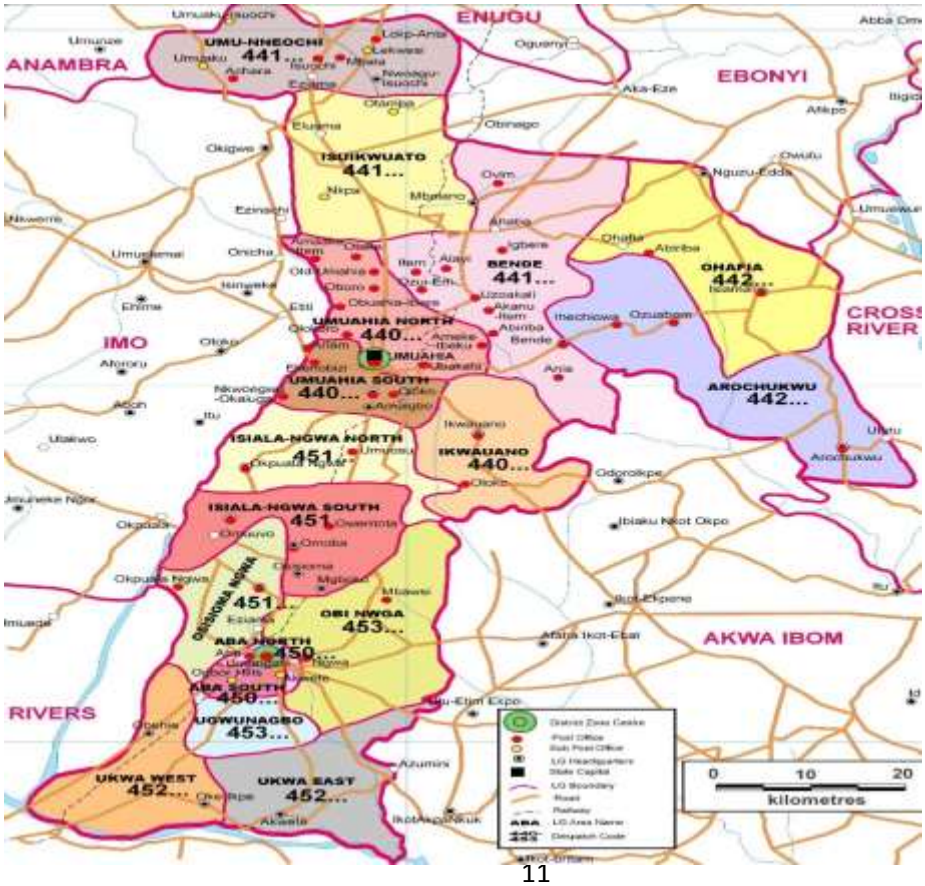
Interestingly, young children, pregnant women and lactating mothers are nutritionally the most vulnerable group, especially in the developing countries of the world where malnutrition affects one out of every three preschool-age children (United Nations Children's Fund [UNICEF], 2020; Oyira *et al*., 2010). Nigeria accounts for 5.7 percent of the world's hunger problems, with 40 percent of Nigerian children under the age of five stunted, 9% wasted, and 25% underweight. Vitamin A, iron, and iodine deficiencies are common, and two out of every five children in Nigeria are chronically malnourished (Grebmer *et al.*, 2011). In developed countries and many traditional societies today, early feeding has been considered a determinant of later character as much as later growth and health. Correct nutrition ensures healthier children, who grow into more productive adults while poor nutrition on the other hand leads to malnutrition. Malnutrition is a condition caused by a poor diet that lacks, has too much of, or has the wrong proportions of certain nutrients (Ali *et al*., 2018). Several factors are used to determine the nutritional status of a population or an individual, factors such as stunting, underweight and wasting are common anthropometric indicators of under nutrition especially among children under 5 years. Feeding practices during infancy are critical for the growth, development and health of a child during the first two years of life and of importance for the early prevention of chronic degenerative diseases (Kalu & Etim, 2014).

However, factors that influence the nutritional status of children may include inadequate dietary intake, poor household food security, diseases like diarrhoea, infections etc., inadequate maternal and childcare, unhealthy environment, lack of education and nutritional information to mention but a few. All of this in turn leads to malnutrition/under nutrition. Under nutrition can lead to substantial problems in mental and physical development. Among children, the impact of under nutrition on the cognitive abilities may lead to poor school achievement in later years (Kalu & Etim, 2014). Therefore, this study analyzed the determinants of maternal literacy and nutritional status among children under 5 years in Umunneochi L.G.A, Abia State having the objectives of assessing the child feeding practices, determine the relationship between the level of nutritional knowledge of the mothers and the nutritional status of their under five children, the relationship between child feeding practices of the mothers and the nutritional status of their under five children and determine the influence of maternal education on the nutritional status of under five children in L.G.A, Abia State.

Materials and methods

Study Area

The study was conducted in Umunneochi LGA of Abia State which is one of the 17 Local Government Areas (LGA) in Abia State of Nigeria. It is officially known as Nneochi with 7 major towns namely, Amuda (Ngodo), Lokpaukwu, Leru, Lomara, Lokpanta, Lekwesi and Mbala. The major occupation of the Umunneochi people includes agriculture, trading and mining of granite, quorite and laterite. The main agricultural food crops are cassava, yam, black beans, and cocoyam. The cash crops are palm nuts and cashew nuts.



Map of Abia State showing Umunneochi local government area

Source: https://nigeriazipcodes.com/363/abia-state-zip-codes/

Population of the study

The total population of Umunneochi L.G.A of Abia State is 163,928 (2006 census). However, the target population (mothers of children below 5 years in Umunneochi L.G.A) is unknown as there is no statistical evidence of the population. Women between the age range of 18- 49 years were used since these women are still in their reproductive ages and are the care givers.

Sample

A sample size of 210 was statistically determined using Godden formular for infinite (unknown) population (Godden, 2004).

$$SS = \frac{Z^2 \times P\ (1 - P)}{M^2}$$

Where:
SS = Sample size for infinite(unknown) population,
Z = Z value (1.96 for 95% confidence interval),
P = Population proportion expressed as decimal (assumed to be 0.5 (50%) since this would provide the maximum sample size),
M = Margin of Error at 5% (0.05)

Sampling design

The cross-sectional descriptive survey research was used to collect data for the study. The study employed convenient sampling method to sample mothers between the age brackets (18-49) with children of under-five that visited the local government health centre for immunization. Data collection was done with the use of self-developed questionnaire.

Data Analysis Techniques

A 4-point Likert rating scale was used to measure the level of practices and knowledge among the mothers on nutritional status of their child using strongly agree (4), agree (3), disagree (2) and strongly disagree (1). Respondents with mean score of 2.5 and above imply they are in agreement with the questions on practices or are knowledgeable on the subject matter while respondents with mean score of less than 2.5 were not in agreement. To determine the mean Likert level = Xs = ΣX. Xs of each item was computed by multiplying the frequency of each response pattern with its appropriate nominal value and dividing the sum with the number of respondents to the items. This can be summarized with the equation below.

$$Xs = \Sigma fn/N \text{ ---------- (1)}$$

Where Xs =mean score
Σ = summation

f= frequency
n = Likert nominal value
N= number of the respondents

Xs=1+2+3+4/4 = 10/4 =2.5

The relationship between Maternal literacy and child's nutritional status was estimated using Pearson's correlation coefficient analysis (r) specified thus;

$$r = \frac{n\sum XY-(\sum X)(Y)}{\sqrt{n(\sum X^2)-(\sum X)^2}\sqrt{n\sum Y^2)-(\sum Y)^2}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where *n* is the number of pairs of data. The value of *r* is such that $-1 \leq r \leq +1$. The + and – signs are used for positive linear correlations and negative linear correlations respectively. The result was presented in tables after the analysis was completed with the Statistical Package for Social Sciences (SPSS) version 25.

Result Presentation

Socio-demographic Characteristics of Respondents

The result (Table 1) showed that most (43.8%) of the respondents were within the age range of 30 years and above. About 36.2% were aged under 25 years and 20.0% were aged between 26 and 30 years. A greater percentage (41.9%) attended tertiary institutions, while 22.9%, 21.4%, 8.6%, and 5.2% attended junior secondary school, senior secondary school, kindergarten/primary school, and no education. The result also showed that 47.1% were married while 41.0% were single. The majority of the mothers sampled (40.0%) had a monthly income of less than N10,000, followed by 38.6% with monthly earnings between N10,000-N50,000. The remaining 15.7 percent and 5.3 percent were in the 50,000-100,000 and above 100,000 brackets, respectively. More so, about 43.4% and 42.4% of the respondents were classified as having good and very good health status, respectively, whereas about 9.0% and 5.2% had fair and poor health statuses.

Table 1: Socio-demographic Characteristic of Respondents

Variables	Frequency	Percentage
Age		
below 25 years	76	36.2
26-30 years	42	20.0
30 and above	92	43.8
Educational level		
None	11	5.2
Kindergarten/primary	18	8.6
Junior high school	48	22.9
Senior high school	45	21.4
Tertiary	88	41.9
Marital Status		
Married	99	47.1
Single	86	41.0
Separated/divorced	14	6.7
Widowed	11	5.2
Monthly income		
< N10000	84	40.0
N10000-50,000	81	38.6
N50,000-100,000	33	15.7
Above N100,000	11	5.3
Health Status		
Very good	89	42.4
Good	91	43.4
Fair	19	9.0
Poor	11	5.2

Source: Field survey, 2020

Child Feeding Practices

Table 2 shows responses to child feeding practices. Giving colostrum was strongly affirmed with a mean score of 3.1. Prelacteal feeding, late introduction of optimal complementary foods and initiation of solid and semi-solid foods, late initiation of breast feeding, and continuing to breastfeed for more than one year (2.6 each) all had a mean score greater than 2.5. However, early complementary feeding practice (2.1) had a mean score below 2.5, indicating that it was not widely practiced among mothers in the study.

Table 2: Mean Distribution of Respondents according to Child Feeding Practices among Mothers

Child Feeding Practices	SA	A	D	SD	Total	Mean
Early complementary feeding	28(112)	71 (213)	92(184)	19 (9)	518	2.10
late initiation of breastfeeding	75(300)	18(54)	82(164)	35(35)	553	2.6
late introduction of optimal CF	33(132)	146(438)	21(41)	10(10)	611	2.9
Initiation of solid and semi-solid food	51(204)	123(369)	4(4)	30(30)	607	2.9
Giving of colostrum	101(404)	44 (132)	41(82)	24(24)	642	3.1
Prelacteal feeding	91(364)	36 (108)	50(100)	33(33)	605	2.9
continuing to breastfeed for 1year	50(200)	54(162)	59(118)	47(74)	554	2.6

Source: Survey data, 2020
Acceptable mean (X) = 2.5, Figures in parenthesis are the Likert frequencies
SA= Strongly Agree, A=Agree, S=Strongly Disagree and D=Disagree
CF= complementary feed

Nutritional Knowledge of the Mothers and Nutritional Status

Table 3 shows that all variables under study had mean scores that were above the acceptable mean of 2.5. Mothers' responses on whether children require sufficient energy for healthy growth, fat as a nutritional diet for a child under five, and calcium as a good nutritional diet for a child had a mean score of 3.6 each. While protein helps a child's body build cells and children require fresh vegetables and fruits for healthy growth scored 3.5 each.

Table 3: Level of nutritional knowledge of the mothers on the status of under five children

Level of Nutritional Knowledge of the Mothers	SA	A	D	SD	Total	Mean
Children require sufficient energy for healthy growth	140 (560)	65 (195)	5 (10)	0 (0)	765	**3.6**
Protein helps a child's body build cells	116 (464)	88 (264)	6 (12)	0 (0)	740	**3.5**
Children require fresh vegetables and fruits for healthy growth	112 (452)	90 (270)	6 (12)	2 (2)	736	**3.5**
Protein helps a child's body break down food into energy	97 (388)	109 (327)	4 (8)	0 (0)	723	**3.4**
Protein helps a child's body fight infection and carry oxygen	100 (400)	92 (276)	16 (32)	2 (2)	710	**3.4**
Fats is a nutritional diet for a child under five	127 (508)	75 (225)	6 (12)	2 (2)	747	**3.6**
Calcium is good nutritional diet for a child	151 (604)	26 (78)	33 (66)	0 (0)	748	**3.6**
Iron is essential nutrient for child's healthy growth	112 (448)	63 (189)	35 (70)	0 (0)	707	**3.4**

Source: Survey data, 2020
Acceptable mean (X) = 2.5, Figures in parenthesis are the Likert frequencies

SA= Strongly Agree, A=Agree, S=Strongly Disagree and D=Disagree

Child Feeding Practices of the Mothers on the Nutritional Status

In Table 4, the distribution of mothers according to child feeding practices is displayed. The study found that the mothers commence exclusive breastfeeding as soon as the baby is born (3.5), rarely give their child water (3.3) and introduce complementary food when the baby develops teeth (3.2), which is shown by mean scores above the acceptable mean of 2.5. Those that had a mean score of less than 2.5 were those that introduced complementary food as soon as the baby was born (2.1) and those that introduced mixed feeding as soon as the baby was born (2.0).

Table 4: Feeding practices among children of under-five (Mother's perspective)

Mothers responses	SA	A	D	SD	Total	Mean
The mothers introduce;						
Complementary food as the baby is born	55(220)	0 (0)	74(148)	81 (81)	449	2.1
Exclusive breastfeeding as the baby is born	152(608)	12(36)	44 (88)	2(2)	734	3.5
Water rarely given at under 6 months	121(484)	42(126)	45 (90)	2(2)	702	3.3
Complementary food when the baby develops teeth	104(416)	56(168)	48 (96)	2(2)	682	3.2
Mixed feeding as the baby is born	32(128)	47(141)	17 (34)	114(114)	417	2.0

Source: Survey data, 2020
Acceptable mean (X) = 2.5, Figures in parenthesis are the Likert frequencies
SA= Strongly Agree, A=Agree, S=Strongly Disagree and D=Disagree

Maternal Literacy and the Nutritional status

The results (Table 5) showed that there is a positive (r = 0.2034) correlation between education and nutritional status of mothers in the study area at 5% level of probability.

Table 5: Correlation analysis between education and mean nutritional status of mothers

Number of observations	Spearman's rho	Prob > |t|
210	**0.2034****	**0.0031**

Source: Survey data, 2020
**** is significant at 5% level**

Discussion of Findings

Nutritional status of a child is often the result of many inter-related factors. It is influenced by food intake, the quantity, quality, and the physical health. Malnutrition is due to multiple socio-economic problems and is associated with the level of development of a country.

Child Feeding Practices

Giving colostrum is (early initiation of first breast milk-feeding means initiation of breast-feeding within one hour of birth) found to be the commonest practice is an indication of how knowledgeable the mothers are on the importance of first breast milk. Dewey and Adu-Afarwuah (2008) explained that colostrum is the special milk that is secreted in the first 2–3 days after delivery. It is produced in small amounts, about 40–50 ml on the first day, but is all that an infant normally needs at this time. WHO (2009) noted that colostrum is rich in white cells and antibodies, and it contains a larger percentage of protein, minerals and fat-soluble vitamins (A, E and K) than later milk. Furthermore, Lawrence and Lawrence (2005) stated that mothers that breast feed their children with colostrum are feeding them with vitamin A which is important for protection of the eye and for the integrity of epithelial surfaces. Debes *et al.,* (2013) systematic review suggests that breast-feeding initiation within 24 hours of birth is associated with 44% reduction in all-cause neonatal mortality.

Complementary feed was also found to be common practice among the respondents. Complementary feeding, the process that starts when breast milk is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk. PAHO/WHO (2002) noted that the target range for complementary feeding is ideal to be taken from 6 to 23 months of age, even though breastfeeding may continue beyond two years. Dewey and Brown (2002) observed at the age of 6 months, an infant's need for energy and nutrients starts to exceed what is provided by breast milk, and complementary feeding becomes necessary to fill the energy and nutrient gap. If complementary foods are not introduced at this age or if they are given inappropriately, an infant's growth may falter. In many countries, the period of complementary feeding from 6–23 months is the time of peak incidence of growth faltering, micronutrient deficiencies and infectious illnesses (Dewey & Adu-Afarwuah, 2008).

The late initiation of breast feeding found in the study is contradicting to the earlier findings and thus may be traced to the health challenged individuals. The result on continuing to breastfeed for two years found is in line with the explanation made by PAHO/WHO (2002) that even after complementary foods have been introduced, breastfeeding remains a critical source of nutrients for the young infant and child. Although, breast milk continues to supply higher quality nutrients than complementary foods, and also protective factors, WHO (2009) recommended that breastfeeding on demand continues with adequate complementary feeding up to 2 years or beyond. However, early complementary feeding practice which was not acceptable practice among mothers is an indication of good practice, hence, complementary feeding is often fraught with problems, with foods being too dilute, not fed often enough or in too small amounts, or replacing breast milk while being of an inferior quality. Both food and feeding practices also influence the quality of complementary feeding, and mothers and families need support to practice good complementary feeding (PAHO/WHO, 2002).

Nutritional Knowledge of the Mothers on the Nutritional Status of their under-Five Children

Nutrition is an important determinant of immunological status. Under-nutrition can make poorer immune competence and increase chances of susceptibility and make vulnerable to infections. The mother awareness and knowledge of nutritional in-take of their child 0-5 years is therefore pivotal. The study found high level of knowledge on nutritional status of the children 0-5 years. In line with the findings, Bhandari and Chhetri, (2013) noted that the immediate causes of malnutrition and high mortality of under five-year children are inadequate dietary intake. In the same note, Dewey and Brown (2002) emphasized the need for children above 6 months to be fed with sufficient energy and nutrients food complementarily fed in addition with breast milk will fill the gap.

However, protein helps a child's body build cells and children require fresh vegetables and fruits for healthy growth scored, protein helps a child's body break down food into energy, helps a child's body fight infection and carry oxygen and Iron is essential nutrient for child's healthy growth. Fresh vegetable and fruits are an indication of vitamin A supplements needed by the children to fight against disease following WHO (2009). As a rule, fortified foods should be preferred to iron supplements for children 0-5 years period (UNICEF, 2019). Importance of fats, including oils, has been identified in previous studies because they increase the energy density of foods, and make them taste better especially among infants. Fat also helps the absorption of vitamin A and other fat-soluble vitamins. Some fats, especially soy and grapeseed oil, also provide essential fatty acids (WHO, 2009).

Child feeding practices of the mothers and the nutritional status of their under-five children

The study that found an excellent child feed practices as the mothers introduced exclusive breastfeeding as soon as the baby is born, rarely gave their child water at under 6 months and complementary food when the baby develops teeth. Exclusive breastfeeding for the first 6 months of life meets the energy and nutrient needs of most infants (Butte *et al.*, 2002). Several studies have shown that healthy infants do not need additional water during the first 6 months if they are exclusively breastfed, even in a hot climate (WHO, 2009). However, water and teas are commonly given to infants, often starting in the first week of life, although the practice has been associated with a two-fold increased risk of diarrhoea following Abodoye and Sekabofori (2000).

Correlation between maternal education and nutritional status of children

The positive and strong relationship found between maternal education and nutritional status in Umunneochi local government area of Abia State implied that increase in mother's education will lead to an increase in nutritional status of children 0-5years. In line with the finding, Sufiyan *et al.*, (2016) found that maternal literacy affects the nutritional status of children as children of illiterate mothers (with no formal education) have increased risk of being malnutrition causing stunting. This is similar to the findings reported by Sufiyan *et al* (2016). Abidoye and Ihebuzor (2001) and Abidoye and Sekabofori (2000). Equally, the finding from an intervention study conducted by Sabitu et al., (2004) which also established a significant association between maternal literacy and malnutrition, has further given hope since the

educational intervention put in place has resulted in a statistically significant reversal of the nutritional indicators. It found that female literacy, participation in growth monitoring, and the degree of urbanization were all positively associated with the prevalence of inadequate weight gain. As such, any effort to improve maternal literacy will have a positive impact on the growth and development of children, who are the leaders of tomorrow.

Conclusion and recommendations

The study provided information on the determinants of maternal literacy and nutrition status of child 0-5 years in LGA, Abia state, Nigeria. There is strong relationship between maternal literacy and nutritional status of children, therefore, there is need for the promotion of maternal education to enable the enhancement of child nutrition. In addition, the health and community services sectors can promote the use of community-based food and utilization forms for ease of acceptability among mothers. Future interventions should focus on improving food access and availability for enhanced diet diversification for the rising population.

References

Abidoye, R.O., & Ihebuzor, N. N. (2001). Assessment of nutritional status using anthropometric method on 1–4-year-old children in an urban ghetto in Lagos, Nigeria. *Nutrition and Health*, 15:29-39.

Abidoye, R.O., & Sekabofori (2000). A study of the prevalence of protein energy malnutrition among 0-5 years in rural Benue state, Nigeria. *Nutrition and health*,13:235-47.

Ali, S. B., Ambreen, I., & Shah, M. (2018). Nutritional Status and Determinants of Malnutrition of Under Five Years of Age Children in Scattered Settlement of Tehsil Takht Bhai, Mardan, Pakistan. *Journal of Community and Public Health Nursing* 4,209. DOI: 10.4172/2471-9846.1000209

Bhandari, T.R., & Chhetri, M. (2013). Nutritional Status of Under Five Year Children and Factors Associated in Kapilvastu District, Nepal. *Journal of Nutrition Health Food Science* 1(1): 6-20.

Butte, N., Lopez-Alarcon, M.G., & Garza, C. (2002). Nutrient adequacy of exclusive breastfeeding for the term infant during the first six months of life. Geneva, World Health Organization, 2002.

Debes, A. K., Kohli, A., Walker, N., Edmond, K., & Mullany, L. C. (2013). Time to initiation of breastfeeding and neonatal mortality and morbidity: A systematic review. *BMC Public Health*, 13(3), S19. https://doi.org/10.1186/1471-2458-13-S3-S19.

Development Initiatives. (2018). 2018 Global Nutrition Report: Shining a light to spur action on nutrition. Bristol, UK: Development Initiatives. Retrieved from https://globalnutritionreport.org/documents/352/2018_Global_Nutrition_Report.pdf.

Dewey, K & Brown, K. (2003). Update on technical issues concerning complementary feeding of young children in developing countries and implications for intervention programs. *Food and Nutrition Bulletin*, 24:5–28. 58.

Ene-Obong, H., Onuoha, N., & Eme, P. (2017). Gender roles, family relationships, and household food and nutrition security in Ohafia matrilineal society in Nigeria. *Maternal & Child Nutrition*, 13. e12506. 10.1111/mcn.12506

Grebmer, K. von, Torero, M., Olofinbiyi, T., Wiesmann, D., Yohannes, Y., Schofield, L., & Oppeln, C. von. (2011). 2011 Global hunger index: The challenge of hunger, taming price spikes and excessive food price volatility. (H. Fritsche, N. Wünsche, & O. Towey, Eds.). Welthungerhilfe. Retrieved from https://www.globalhungerindex.org/pdf/en/2011.pdf.

Lawrence, R.A., & Lawrence, R.M., (2005). Breastfeeding: a guide for the medical profession. 6th Edition. London, Mosby.

Kalu, R. E., & Etim, K. D. (2018). Factors associated with malnutrition among under-five children in developing countries: A Review. Global Journal of Pure and Applied Sciences, 24(1), 69–74. https://doi.org/10.4314/gjpas.v24i1.8

Oyira, E. J., & Opiah, M. M. (2019). Socio-cultural factors influencing child nutrition among mothers in Calabar municipality, Cross River state, Nigeria. *International Journal of Interdisciplinary Research Methods*, 6(4), 28-51. ISSN 2398-7138. Retrieved from https://www.eajournals.org/wp-content/uploads/Socio-Cultural-Factors-Influencing-Child-Nutrition-among-Mothers-in-Calabar-Municipality-Cross-River-State-Nigeria.pdf

PAHO/WHO (2002). Guiding principles for complementary feeding of the breastfed child. Washington DC, Pan American Health Organization/World Health Organization, 2002.

Quandt, S. A. (2020). Assessment of Nutritional Status. In *Encyclopaedia of Food and Culture*. Retrieved February 24, 2020, from https://www.encyclopedia.com/food/encyclopedias-almanacs-transcripts-and-maps/assessment-nutritional-status.

Renkert, S & Nutbeam, Don. (2002). Opportunities to improve maternal health literacy through antenatal education: An exploratory study. *Health promotion international*, 16. 381-8. 10.1093/heapro/16.4.381.

Sabitu, K., Iliyasu, Z., Hassan, S.S., & Mande, A.T., (2004). Evaluation of a community level nutritional information system for action in a rural community of Zaria, northern Nigeria. *Annals of African Medicine*, 2(3):120-5.

Sufiyan, M.B., Bashir, S.S., & Umar, A.A., (2012). Effect of maternal literacy on nutritional status of children under 5 years of age in the BabbanDodo community Zaria city, Northwest Nigeria. *Annals of Nigerian Medicine*; 6: 61-4.

UNICEF (2020). Early childhood nutrition. United Nations Children's Fund. Retrieved August 4, 2021, from https://www.unicef.org/nutrition/early-childhood-nutrition.

UNICEF (2019). Levels and trends in child malnutrition, United Nations Children's fund (UNICEF), World Health Organization, International Bank for Reconstruction and Development/The World Bank. Levels and trends in child malnutrition: key findings of the 2019 edition of the joint child malnutrition estimates. Geneva: World Health Organization; 2019 Licence: CC BY-NC-SA 3.0 IGO; 2019.

WHO (2009). Infant and young child feeding. WHO Library Cataloguing-in-Publication Data. 111pp

WHO/UNICEF (2006). Joint statement: iron supplementation of young children in regions where malaria transmission is intense and infectious disease highly prevalent. Geneva, World Health Organization, 2006. 23.