*Original Research Article*

Practices of Complementary Feeding Amongst Breastfeeding Mothers Attending Immunization Clinics in Makurdi, Benue State

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ABSTRACT

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| **Introduction:** Malnutrition is a globally common problem, particularly amongst infants – this is due to the delicate balance in their system. As such, its important to institute proper feeding and nutritional measures, especially as it relates to enlightening mothers with low levels of education in rural communities, because its mostly seen in communities and villages, particularly those where proper nutritional practices are absent. In Nigeria today, malnutrition is one of the leading causes of death amongst children, with those under the age of five (5) years most affected. Malnutrition in infants during weaning has been attributed to inappropriate complementary feeding practices and it underlies more than one-third of child mortality in Nigeria. Thus, addressing the influence of complementary feeding practices on the nutritional status of children is an important approach towards reducing the burden of child malnutrition. According to UNICEF; 100 children in Nigeria die per-hour due to malnutrition, which translates to about 2,400 deaths daily, thus making this research crucial.**Aims:** To assess complementary feeding practices amongst breastfeeding mothers attending immunization clinics in Makurdi, Benue State, with specific objective to determine their knowledge, attitudes and practices of complementary feeding.**Study design:** Cross-sectional descriptive study.**Place and Duration of Study:** Benue State University Teaching Hospital immunization clinic, Benue State Ministry of Health Epidemiological unit immunization Clinic and Benue State Family Support and Planning immunization Clinic, between January and December 2023**Methodology:** We included 108 clients, selected using random sampling technique, by proportional allocation; 20 from BSUTH immunization clinic, 35 from the Benue State Epidemiological clinic and 53 from FSP clinic. Data was collected from respondents, using a well-structured self-administered questionnaire. A pre-testing of our questionnaire was done at the Federal Medical Center immunization clinic Makurdi, using 10 random respondents, before carrying out our actual data collection from our clients. **Results:** Out of 108 respondents, majority 91.7% agreed that they gave additional foods to breast milk. 75.0% said complementary feeding is a good practice. About half 52.8% of respondent cited ≤6 months as the proper age of starting complementary feeding. Majority 98.1% said the type of food given to the child depends on the age, while 94.4% said it’s appropriate to breastfeed alongside complementary feeding. About half 53.7% introduced complementary feeding at 6 months and above; while 33.3% introduced it between 3-5 months, and a few of the respondents 13.0% introduced it between 0 – 3 months.**Conclusion:** In conclusion, the majority of our respondents had good knowledge of complementary feeding, evident by the 96.3% who affirmed to the necessity of complementary food alongside breast milk. Also, a good attitude toward complementary feeding (75.0%) and 91.7% practice complementary feeding. |

*Keywords: Complementary feeding, Knowledge, Attitude, Practice.*

1. INTRODUCTION

Complementary feeding is the corner stone of child’s nutrition. This involves complementing breast milk or breast milk substitute with other foods, from the age of six months, appropriate for sustaining normal growth and development while breastfeeding continues till two years or beyond [1].

Breastfeeding, according to Okeahialam, [2] offers the best nourishment for a child's optimal growth and maintenance within the first months after birth. After that, it is no more sufficient in terms of both quality and quantity for the child's proper growth and development. Complementary feeding must be done on time, which means that babies should start ingesting meals other than breast milk at the age of six months [3].

It should not be done before the age of six months or after the age of six months. It should be sufficient, which means that it should have a good nutritional value. It should be safe during preparation and administration; all measures should be taken to minimize contamination and it should be appropriate meaning that the foods should be in sufficient quantity and texture acceptable to the infant [4].

Similarly, Abeshuet al [3] stated that complementary foods refer to foods and liquids other than breast milk or infant formulas. They are needed for nutritional and cognitive reasons throughout the second half of the first year of life, as well as to help with the change from breast milk to family foods.

Complementary foods are anticipated to be high in energy density with adequate protein composition, required vitamins and minerals to meet the nutrient needs of the infant. Traditional complementary foods in most cases are made from mono cereal gruel such as millet, guinea corn, maize, sorghum and are deficient in essential amino acids, particularly lysine. A combination of cereal, tuber, vegetables and sea foods in formulating complementary food may help to provide the deficiency inessential amino acids and micronutrients in mono cereal traditional complementary foods [4].

Complementary feeding is critical for the proper nutrition of babies and young children since it ensures their growth, health, and development. Appropriate child feeding techniques and parental behaviors have a positive impact on infant and young child growth [5].

In most of the countries analyzed, for example, a review of data sets from numerous Latin American countries revealed that adequate breastfeeding and complementary feeding practices were favorably associated with child height-for-age [6].

Between the ages of 6 and 23 months, the transition from exclusive nursing to family eating takes place. Many infants begin to suffer from malnutrition at this age, contributing significantly to the high prevalence of malnutrition among children under the age of five years around the world. Complementary foods should be added to the child's diet during this time [5].

It is required to bridge the energy, iron, and other important nutrients gap between what is delivered by exclusive breastfeeding and the infant's overall nutritional needs. This gap widens as people become older, necessitating a greater input of energy and minerals, particularly iron, from sources other than breast milk [7].

Every year, almost one million Nigerian children under the age of five die, with an estimated 11 million children under the age of five dying worldwide. In Nigeria, an estimated 2 million children suffer from SAM, but only two out of every ten of these children receive treatment. Wasting and stunting are symptoms of dietary insufficiency that occur suddenly or over time. Furthermore, underweight reflects both acute and chronic dietary deficient exposures [8].

Stunting, underweight, and thinness were found to be prevalent in 41.6 percent, 18.2 percent, and 20.0 percent of school students in a rural Southeastern Nigerian community [9].

Measles, malaria, diarrhea, pneumonia, and other infections are common among malnourished children [10]. Children who are malnourished and have micronutrient deficiencies early in life have a lifelong deficit in cognitive and physical development, according to research. It has been stated that growth has slowed as a result of a lack of complementary food in terms of quality, quantity, and frequency of meals [11].

Globally, 6.9 million children below the age of five years died in 2011, and 33% of these deaths are linked to malnutrition. Nutrition plays a vital role in the development and health of children. Children during the first two years of life are particularly vulnerable to growth retardation, micronutrient deficiencies, and common childhood illnesses such as diarrhoea and acute respiratory infections [12], [13].

UNICEF describes the complex causes of malnutrition under two main categories, immediate and underlying causes. Immediate causes of malnutrition are inadequate dietary intake and illness. The underlying causes that lead to inadequate dietary intake and infectious disease include inadequate household access to food, poor health services, unhealthy environments, and inadequate care of children and women [14].

Proper complementary feeding very essential for proper physical, neurocognitive development of child. It’s very important for development of child to introduced complementary feeds in timely manner, adequate quantity, appropriate consistency and hygienically. So, mother must know basic knowledge about complementary feeding, as children are highly susceptible to growth faltering, if they don’t get essential nutrient especially between 6 and 24 months of age, moreover it’s difficult to reverse shunting after 2 years of age [15].

According to 2018 National demographic and Health Survey (NDHS) 69.9% of under-fives in the region suffer from any form of anemia, 24.2% are stunted or severely stunted, 5.5% are thin or severely wasted, 12.9% are underweight or severely underweight and 1.0% are overweight [9]. South-East has a lower rate of underweight among under-fives compared to other geo-political zones in Nigeria apart from South-South [16].

1. methodology

**2.1 Research Design**

Cross-sectional, descriptive study was used to analyses the data of variables collected at one given point in time across the sample population; it was used to describe characteristics that exist in the study population. The research design was effective, since it evaluated the knowledge and attitude as well as assessed the practices of complementary feeding amongst the breastfeeding mothers [17].

**2.2 Research Area**

The study was carried out at three (3) health facilities in Makurdi, Benue State, Nigeria.

First facility was the immunization clinic of the Benue State University Teaching Hospital, second was the immunization clinic of the Benue State Ministry of Health Epidemiology unit and the third was Benue State Family Support and Planning immunization clinic.

A pre-test was done to authenticate our questionnaires, at the immunization clinic of Federal Medical Center Makurdi.

**2.5 Study Population**

The children undergoing immunization at BSUTH, Epidemiology unit and FSP clinic were used for the study.

**2.5.1 Inclusion Criteria**

All consenting breastfeeding mothers of children brought for immunization within the study area in Makurdi were included into the study.

**2.5.2 Exclusion Criteria**

All non-consenting breastfeeding mothers of children brought for immunization within the study area in Makurdi were excluded, as well as mothers with sick children.

**2.3 Sample Size**

 n1 = Z2 P (1 – P) N [18]

 d2 (N – 1) + Z2 P (1 – P)

Where:

n1​ = Adjusted sample size

Z = Standard normal deviate at a 95% confidence interval (1.96)

P = National prevalence of timely initiation of complementary feeding (47.9% or 0.479) [19]

q = Complementary probability of P, i.e., q = 1−P = 1−0.479 = 0.521

d = Absolute precision (5% or 0.05)

N = Study population (150)

Substituting the values:

n1 = (1.96)2 × 0.479 × 0.521 × 150

 (0.05)2 (150 − 1) + (1.96)2 × 0.479 × 0.521

n1 = 3.8416 x 0.2495 x 150

 0.0025 x 149 + 3.8416 x 0.2495

 143.67

n1 = 0.3725 + 0.9581

 143.67

n1 = 1.3306

n1 = 107.99 = 108.

Therefore, 108 sample size was used.

**2.4 Sampling Technique**

Multistage Sampling technique was used for the study.

**Stage 1**

Three immunization clinics in Makurdi were selected by convenience sampling technique, considering the feasibility of our study, and the absence of logistic constraints. Thus, BSUTH, Benue State Ministry of Health Epidemiology unit and Benue State FSP clinic was used for the study.

**Stage 2**

We verified the immunization clinic days in the various study areas, to enable us properly plan our strategy for data collection.

**Stage 3**

Selection of the clients/respondents was done by obtaining the list of all the patients attending the various immunization clinics, then using proportionate allocation, the total number of mothers attending each clinic multiplied by the sample size, divided by the total sample frame was used to calculate the number of respondents per-clinic.

Number of children per-clinic=

Sample Size (108.00) X No. Breastfeeding Mothers attending immunization clinic

 Sample Frame

Proportionate allocation of respondents is as shown in the table below;

**Table 1:** Proportionate allocation of respondents

|  |  |  |
| --- | --- | --- |
| Hospital | Total Clients Per-clinic (daily) | Total proportionate respondents |
| BSUTH immunization clinic | 40 | 20 |
| Benue State Ministry of Health Epidemiology Unit immunization clinic | 70 | 35 |
| Benue State FSP immunization clinic  | 105 | 53 |

**2.6 Data Collection Tool**

Both self- and interviewer administered questionnaire was used.

**2.7 Pre-testing of Data Tool**

About 10% of sample size questionnaires were prepared and pre-tested at Federal Medical Center Makurdi, and the pre-test was carefully analyzed and corrections subsequently made on the questionnaire, before proper study was conducted; this was to eliminate errors and delays during actual study.

**2.8 Data Collection Procedure**

Data was collected using both self- and interviewer administered questionnaire collection methods; this way, both educated and non-educated clients were properly accounted for.

The purpose of the study was explained to the breastfeeding mothers and an informed verbal consent was obtained from them before there were given the questionnaires to fill. The researchers were around to clarify areas of difficulty in the questionnaire to the respondents. Before retrieval of the questionnaire from each respondent, the completed questionnaires were checked and missing information was returned to the respondents to fill the missing information. Administration of questionnaires was done between 10am-4pm when most respondents were in the clinics.

**2.9 Data Management and analysis**

Data collected was checked for completeness and analysis was done using the statistical package for social sciences (SPSS) version 23. Variables were expressed in tables.

3. results and discussion

**3.1 Results**

The total number of respondents used for the study was 108 and the response rate was 100%, all represented in tables below.

**Table 2: Socio-demographic Characteristic of the Respondents**

|  |  |  |
| --- | --- | --- |
| **Variables** | **Frequency N=108** | **Percent (%)** |
| **Ethnic Group**TivIdomaHausaIgedeOthers | 482712 516 | 44.425.011.1 3.715.1 |
| **Occupation**BusinessFarmingHousewifeCivil ServantsOthers | 38133122 4 | 35.212.028.720.4 3.7 |
| **Educational Level**NonePrimarySecondaryTertiary |  4143060 |  3.713.027.855.6 |
| **Religion**ChristianityMuslim | 9414 | 87.013.0 |
| **Type of Family**ExtendedNuclear | 2385 | 21.378.7 |
| **Age**21-30 years31-40 years41-50 years | 5250 6 | 48.246.3 5.6 |
| **Age at marriage**≤ 2021-2526-30≥31 |  4593213 |  3.754.629.612.0 |
| **Age became pregnant**≤ 2021-30≥31 |  78931 |  6.582.411.1 |
| **Child's Position**1st Child2nd Child3rd Child4th Child5th Child6th Child | 31361810 7 1 | 28.733.317.1 9.3 6.5 0.9 |

**Table 3: Knowledge of Mothers Attending Immunization Clinics in Makurdi, Benue State Regarding Complementary Feeding**

|  |  |  |
| --- | --- | --- |
| **Variables** | **Frequency N=108** | **Percent (%)** |
| **Gives breast milk alongside complimentary feeding**NoYes |  999 |   8.391.7 |
| **The necessity of complementary feeding**NoYes |  4104 |  3.796.3 |

**Table 4: Attitude of Mothers Attending Immunization Clinics in Makurdi, Benue State**

 **Regarding Complementary Feeding**

|  |  |  |
| --- | --- | --- |
| **Variables** | **Frequency N=108** | **Percent (%)** |
| **Complementary feeding is a good practice**AgreeDisagreeStrongly agree | 81 225 | 75.0 1.923.1 |
| **Frequent hand washing and good hygiene practices is important for healthy complementary feeding**AgreeStrongly AgreeDisagree | 61 146 | 56.5 0.942.6 |
| **The proper age of starting additional food other than breast milk**≥ 5 months≤6 monthsI don't Know | 4457 7 | 40.752.8 6.5 |
| **The type of food given to the child depend on age**NoYes |  2106 |  1.998.1 |
| **Type of food given at 6 months when addition food is needed?**NAN/cerelacMashed/formulaGuinea corn/Millet Rice and Beans | 12 65535 | 11.1 5.650.932.4 |
| **Give breast milk alongside complimentary feeding**Don't knowYes |  6102 |  5.694.4 |

**Table 5: Breastfeeding Practices of Mothers Attending Immunization Clinics in Makurdi, Benue State**

|  |  |  |
| --- | --- | --- |
| **Variables** | **Frequency N=108** | **Percent (%)** |
| **Daily breastfeeding frequency**1-10 times11-20 timesOn demandNil | 4258 4 4 | 38.953.7 3.7 3.7 |
| **Night breastfeeding frequency**1-5 times6-10 timesNil | 94 8 6 | 87.0 7.4 5.6 |

**Table 6: Complementary Feeding Practices of Mothers Attending Immunization Clinics in Makurdi, Benue State**

|  |  |  |
| --- | --- | --- |
| **Variables** | **Frequency N=108** | **Percent (%)** |
| **Age complementary feeding was introduced**0-2 months3-5 months6 months and above | 143658 | 13.033.353.7 |
| **Daily complementary feeding frequency** 1-2 times3-5 timesOn demand | 1491 3 | 13.084.3 2.7 |
| **Current complementary foods**NAN/cerelacMashed/formulaGuinea corn/Millet Rice and Beans | 11 66031 | 10.2 5.655.628.7 |
| **Child feeds from own bow**Eat from family potOwn BowOthers | 1987 2 | 17.680.6 1.9 |
| **Child’s food is prepared by**Mother onlyMother or FatherSiblingsOthers | 98 2 2 6 | 90.7 1.9 1.9 5.6 |

**3.2 Discussion**

Our research revealed that the respondents were largely from the Tiv ethnic group (44.4%), followed by Idoma (25.0%) and Hausa (11.1%). Meanwhile, 55.6% had a tertiary level of education, with majority falling between the age group of 20-30 years, which is about 48.2%, out of which majority got married between 21-25 (54.6%); this might be due to the fact that women here value early marriage, as well as building a family life. The research done by Kingsley AppiaBimpong et al, which showed that mother’s/care giver’s knowledge of infant feeding recommendations greatly contributes to the practice of complementary feeding; this is because, the older the mother/caregiver, the higher her likelihood of proper complementary feeding practices [20].

Similarly, over half (56.5%) of the respondents in this study stopped breastfeeding their child from 18months and above, 37.0% stopped below 9 months, while 6.7% stopped at 12 months; Kingsley AppiaBimpong et al publication also showed that, 68% of the mothers/care givers knew the recommended duration for continued breastfeeding. Regarding the recommended age at which a baby should be given complementary foods, 72% rightly said after 6 months [20], which implies adequate general knowledge.

Majority (91.7%) of the respondents gave complementary foods in addition to breast milk, similarly, most (96.3%) of them also agreed that giving additional food with breastfeeding is necessary, both of which implies a good knowledge of complementary feeding. Similarly, research conducted in Kibera informal settlements, where care-givers felt that it was not possible to breastfeed exclusively for the first six months of a child’s age because they felt the breast milk was not sufficient, hence their justification to introduce solid food earlier than 6 months of age [21]. A study conducted in selected urban areas in Nepal also showed a good knowledge amongst majority (98.7%) of mothers [18].

Majority (75%) of respondents, agreed that complementary feeding is a good practice, while 98.1% said the type of complementary food given depends on the age of the child, which is true, but may differ in a few societies, due to ethnical food variations. But this is affected by poverty, as revealed in research conducted in Nairobi informal settlements which showed that poverty contributes the highest percentage to severe acute malnutrition among infants and young children, and that almost all the children admitted to OTP come from the informal settlements [21].

When asked how many times (in terms of frequency) should complementary feeding be given, majority (84.3%) said 3-5 times, 13.2% said 1-2 times, while 2.7% said on demand. This shows inadequate knowledge, as infants usually eat in-between meals, in small quantities, which can increase their need for feeding above 3-5 times. As such, designating number of times to feed a child every day, might be defective. This is well captured in a publication by WHO and National Infants and Young Children Feeding Guidelines, which recommends, exclusive breastfeeding in the first six months of life and initiation of appropriate, adequate and safe complementary feeding at 6 months of life while feeding on demand continues till 2 years or beyond [19].

Over half (55.6%) of the respondents give their child Guinea corn/Millet, 28.7% give rice and beans, while 10.2% give NAN/Cerelac, which implies that not all mothers/caregivers are able to afford NAN (which has high protein constituents), which may be due to poverty. A study done where ccomplementary feeding practices have been reported to be sub-optimal in poor settings; findings from that study in one informal settlement revealed a high (94%) consumption of starchy foods, with very low (9%) consumption of animal source food. This translated to 13.5% and 15.4% of children who attained minimum dietary diversity and minimum acceptable diet respectively [21].

4. Conclusion

This study concluded that majority of respondents had good knowledge of complementary feeding, evident by the 96.3% who affirmed that they give complementary food alongside breast milk. Also, a good attitude toward complementary feeding was seen in majority (75.0%), and majority (91.7%) practice complementary feeding as well. Additionally, majority (53.7%) were aware that complementary feeding is to be commenced at 6 months and above. However, only a minority (2.7%) know that complementary feeding for infants should be given on demand – which means that as good as the knowledge and attitude of breastfeeding mothers is towards complementary feeding, majority have wrong practices. Therefore, breastfeeding mothers will benefit from government policies geared towards educating them on the need to liberally feed their growing infants after 6 months – by organizing weekly sensitization seminars in immunization clinics around health facilities around communities and low-resource settings.

Ethical approval AND Consent

A letter of introduction, written and signed by the Head of department, was collected from the department of Epidemiology and Community Health, College of Health Sciences, Benue State University, and permission was sought from the officers in charge of the various immunization clinics. As well, the College board for research committee approved an ethical clearance for the study. The respondents were informed about the objective and purpose of the study and verbal consents was gotten from each respondent, before questionnaire administration. Confidentiality was ensured and information gotten was recorded anonymously. There was no significant risk to the participants since no invasive procedure was involved; except for time given.

**LIMITATIONS**

Common limitations like language barriers, inconsistencies in data entry, recall bias amongst others, were avoided by ensuring interpretations was done where necessary, required information in questionnaires were well explained for correct inputs, clients tasked to recall and accurately input data.

**DECLARATION / DISCLAIMER (Artificial Intelligence)**

Author(s) hereby declare that the project titled “Practices of complementary feeding amongst children attending immunization clinics in Makurdi, Benue State,” was carried out by us; and during the generation of our manuscript, NO generative AI technologies such as Large Language Models (ChatGPT, etc) and text-to-image generators have been used.

Disclaimer (Artificial intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

References

1. Wachukwu-Chikodi H. I. and SonyeC. U.Assessment of Complementary Feeding Practices and Nutritional Status of Children (0-24 months) in Akuku Toru Local Government Area of Rivers State, Nigeria. Asian Food Science Journal. 2022;21(7): 24-34 (https://www.researchgate.net/publication/360571927)
2. Okeahialam T. Complementary Feeding: The foundation of Child Nutrition. J Child Health., 2017;1(1):1 – 22
3. Abeshu MA, Lelisa A, Geleta B. Food Preparations in Developing CountriesLessons from Ethiopia. Frontiers in Nutrition. 2016;3(41):PMC5065977. DOI: 10.3389/fnut.2016.00041
4. Ibe BC. Overview of Complementary Feeding. J Child Health, 2017;1(1):23 – 40.
5. Bimpong KA, Cheyuo EKE, Abdul-Mumin A. et al. Mothers’ knowledge and attitudes regarding child feeding recommendations, complementary feeding practices and determinants of adequate diet. BMC Nutr 2020;6:67.Available: https://doi.org/10.1186/s40795020-00393-0
6. Heidkamp RA, Ayoya MA, Teta II, Stoltzfus RJ, Marhone JP. Complementary feeding practices and child growth outcomes in Haiti: an analysis of data from demographic and health surveys. Matern Child Nutr. 2015;11(4):815-828.
7. Udoh EE, Amodu OK. Complementary feeding practices among mothers and nutritional status of infants in Akpabuyo Area, Cross River State Nigeria. Springerplus, 2016;5(1):2073. DOI: 10.1186/s40064-016-3751-7.
8. Gebre AP, Reddy S, Mulugeta A, Sedik Y, Kahssay M. "Prevalence of Malnutrition and Associated Factors among Under-Five Children in Pastoral Communities of Afar Regional State, Northeast Ethiopia: A Community-Based Cross-Sectional Study", Journal of Nutrition and Metabolism; 2019. Available: <https://doi.org/10.1155/2019/9187609>
9. Ayogu RNB, Afiaenyi IC, Madukwe EU. et al. Prevalence and predictors of undernutrition among school children in a rural South-eastern Nigerian community: a cross-sectional study. BMC Public Health. 2018;18:587. Available: <https://doi.org/10.1186/s12889018-5479-5>
10. Walson JL, Berkley JA. The impact of malnutrition on childhood infections. CurrOpin Infect Dis., 2018;31(3):231-236.
11. Kruger R, Gericke, GA. Qualitative exploration of rural feeding and weaning practices, knowledge and attitudes on nutrition. ; Public Health Nutr. 2013;6(2):217-223.
12. Cumber SN, Bongkiynuy N, Jaila S, Tsoka-Gwegweni JM. Poor Complementary Feeding Practices among Young Children in Cameroon. South African Journal of Clinical Nutrition. 2017; 30(2): 37-38
13. Hamel C, Enne J, Omer K, Ayara N, Yarima Y, Cockcroft A., Andersson N., Childhood Malnutrition is Associated with Maternal Care during Pregnancy and Childbirth; a Cross- sectional Study in Bauchi and Cross River States, Nigeria. Journal of Public Health Research. 2015: 4:408 58-64
14. Masuke R, Msuya SE, Mahande JM, Diarz EJ, Pedersson BS, Jahanpour O, Mgongo M,. Effect of inappropriate complementary feeding practices on the nutritional status of children aged 6-24 months in Moshi, Northern Tanzania: a cohort study. PLOS ONE 2021 <https://doi.org/10.1371/journal.pone.0250562>
15. Onubogu CU, Ugochukwu EF, Okeke KN, Manyike CP, Ekwochi U, Ukpabi IK. Complementary Feeding Practices of Mothers Resident in South-East Nigeria and Effect on Weight of Children Aged 6-23 Months. J. Adv. Med. Med. Res. [Internet]. 2022 Sep. 17 [cited 2025 Feb. 8];34(22):69-83. Available from: <https://journaljammr.com/index.php/JAMMR/article/view/4666>
16. Katole NT, Kale JS, Kaple M, Waghmare SM. Knowledge, Attitude, and Practice Analysis among Rural Mothers of 6 to 24 Month Age Child Regarding Complementary Feeding. J. Pharm. Res. Int. [Internet]. 2021 Dec. 21 [cited 2025 Feb. 8];33(60A):918-26. Available from: <https://journaljpri.com/index.php/JPRI/article/view/5229>
17. National Population Commission (NPC) [Nigeria] and ICF Macro. Nigeria Demographic and Health Survey (NDHS) 2013. Abuja Nigeria: National Population Commission and ICF Macro; 2014, accessed, 2023.
18. Ulak N, KC D and Tiwari K, Complementary Feeding Practices and it's Associated Factors Among Mothers in Selected Urban Area of Nepal: Asploro Journal of Biomedical and Clinical Case Reports. 02 January 2020. <https://doi.org/10.36502/2020/ASJBCCR.6176>
19. WHO/NHD. Infant and young child feeding. A tool for assessing national practices, policies and programmes. WHO, Geneva 2003
20. Odera CA, Complementary feeding knowledge, attitudes and practices among caregivers of children in outpatient therapeutic programme in Nairobi city county, Kenya. 2018
21. WHO. Guiding principles for complementary feeding of the breastfed child, Pan American Health Organization. 2003

Abbreviations

BSUTH: Benue State University Teaching Hospital

FSP: Family Support and Planning

SAM: Severe Acute Malnutrition

UNICEF: United Nations Children’s Fund

OTP: Out-patient Therapeutic Program

NAN: Nestle milk

AI: Artificial Intelligence

 **APPENDIX**

**QUESTIONNAIRE**

**PRACTICES OF COMPLEMENTARY FEEDING AMONGST CHILDREN ATTENDING IMMUNIZATION CLINICS IN MAKURDI, BENUE STATE**

*This questionnaire is intended to help in the study of the practices of complementary feeding amongst children attending immunization clinics in Makurdi, Benue State. Information given on this questionnaire shall be treated with absolute confidentiality. Names are not required*

**A: SOCIAL DEMOGRAPHIC CHARACTERISTICS**

**(BABY**)

1. Date of birth of child…………………………………………………....
2. Age of child in months ……………………….………………………..
3. What was your child’s birth weight …………………………………….
4. What is the order of birth of this child? ………………………………..

**(MOTHER)**

1. What is your age ………………………. (Years)
2. What was your age at marriage....................?
3. At what age did you become first pregnant? ...............................
4. What is your level of education? [ ] Primary [ ] Secondary [ ] Tertiary [ ] None
5. Occupation of mother? A. house wife [ ] b. farming and agriculture [ ] c. Government employee [ ] d. Business [ ] e. others (specify) …………………………………..
6. What is your Family type? a. Nuclear [ ] b. Extended [ ]
7. What is your tribe? Tiv [ ] Idoma [ ] Igede [ ] Others (Specify)………………
8. What is your religion? Christianity [ ] Islam [ ] Others (Specify)………………
9. What is your Marital Status Single [ ] Married [ ] Divorced [ ] Separated [ ] Widowed [ ]Cohabiting [ ]
10. How many people in your family feed from the same pot?.......................
11. What is your family’s source of income? a. Agriculture [ ] b. Government employee [ ] c. Business [ ] d. Others……………………. (you can tick more than one)

**B: GENERAL INFORMATION ABOUT BREAST FEEDING**

1. Has your child had any infection in the past two weeks? a. Yes [ ] b. No [ ] c. Don’t Know [ ]
2. Has your last child ever been breastfed? a. Yes [ ] b. No [ ] c. Don’t Know [ ]
3. When did you start breastfeeding this child? a. The very first day after delivery [ ] b. The second day [ ] c. The third day [ ] d. The fourth day [ ] e. Don’t Know [ ]
4. If breastfeeding began on day one, please indicate the hours after delivery Breastfeeding commenced? a. Within 30 minutes after birth [ ] b. Within one hour after birth [ ] Within two hours after birth [ ] d. Don’t Know [ ]
5. Are you still breastfeeding your child? a. Yes [ ] b. No [ ] If the answer is no, what age did you stop breastfeeding the child? Specify……………………………….. (Months)
6. Do you give water to your child? a. Yes [ ] b. No [ ] c. don’t Know [ ] If 21 is yes, at what age of the child did you start? Specify..................................... (Months)
7. Have you started giving complementary foods to the child? a. Yes [ ] b. No [ ] c. don’t Know [ ] If yes to 22, at what age of the child did you start? Specify ……………………. (Months)
8. Do you give the child breast milk alongside complementary feeding? a. Yes [ ] b. No [ ] c. Don’t Know [ ]
9. On the average how many times do you breastfeed your child in a day? a. Two times [ ] b. Three times [ ] c. Four times [ ] d. Five times [ ] e. Six times [ ] f. Greater than six times [ ] g. Don’t Know [ ]
10. How many times do you breastfeed during the night? ..................................................

**C: KNOWLEDGE OF MOTHERS ABOUT COMPLEMENTARY FEEDING PRACTICES**

1. Is it necessary to give additional food to the breast feeding child? a. Yes [ ] b. No [ ] c. Don’t know [ ]
2. If yes, what is the proper age of starting additional food other than breast milk? a. Before 6 months [ ] b. At 6 months [ ] c. After six months [ ] d. Don’t Know [ ] e. ………..months
3. In your opinion do the type of food given depends upon age of the child? a. Yes [ ] b. No [ ]
4. What type of food should be given at 6 months when additional food other than breast milk starts? a. Soft beans [ ] b. Rice [ ] c. Soft yam [ ] d. Fruits pieces [ ] e. Pap [ ] f. Don’t Know [ ]
5. In your opinion, is it proper to give breast milk alongside complementary feeding? a. Yes [ ] b. No [ ] c. Don’t know [ ]
6. What number of times (frequency) does your child need to fed per day? a. Ones [ ] b. Twice [ ] c. On demand [ ]
7. What quantity of food should be given to your child? a. Large [ ] b. Small [ ] c. Don’t know [ ]
8. How should the food you give to your child be? a. Soft [ ] b. Solid [ ]c. both soft and solidd. Don’t know [ ]
9. Is it necessary to wash hand before preparing food? Yes [ ] No [ ]

If yes, give reasons for 34? (list four reasons)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. If yes, how often do you wash your hands before feeding your child?
2. always [ ] b. sometimes [ ] c. rarely [ ] d. never [ ]
3. Can child face any problem if mother is not careful about giving additional food? Yes [ ] No [ ]
4. If yes, what problem can arise? Indigestion [ ] Vomiting [ ] Diarrhea [ ] Tuberculosis [ ] others (specify) …………………………….. (you can thick multiple options)
5. How can you prevent such problem? Introduction of additional food according to age [ ] Proper amount of additional food [ ] Introduce large amount of additional food [ ] Others……………………………………..
6. Can you list 5 benefits of complementary feeding?

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. List some health problems that can occur to a child when additional food (complementary feeding) is not started at proper age?

Underweight [ ] Inactive child [ ] Short height [ ] others (specify)………………………

1. From where did you get information about additional food? Health institution [ ] Radio, T.V etc[ ] Family members [ ] others (specify)……………..

**D: ATTITUDE OF MOTHERS TOWARDS COMPLEMENTARY FEEDING PRACTICES**

Tick as appropriate

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Questions | Agree | Strongly Agree | Disagree | Strongly Disagree |
| 1. Complementary feeding is a good practice
 |  |  |  |  |
| 1. It is better to do complimentary feeding alongside breastfeeding
 |  |  |  |  |
| 1. Family food can serve as complementary foods
 |  |  |  |  |
| 1. Complementary feeding should be given on demand
 |  |  |  |  |
| 1. A frequent hand washing and good hygiene practice is important for healthy complementary feeding
 |  |  |  |  |

**E: CURRENT PRACTICE OF COMPLEMENTARY FEEDING AMONG MOTHERS**

1. At what age of your child did you introduce addional food to the breast milk of your child? ............ Months
2. How many times per-day do you give the child complementary foods? .............times
3. Are you still breastfeeding your baby? a) Yes b) No
4. What are you giving the child currently as food?
5. Only breast milk b. pap/other semi solid foods only c. family foods and pap/other semi solid foods
6. List all the things you gave your baby yesterday as food.

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Mention/tick ingredients used in producing your baby’s pap?

|  |  |  |  |
| --- | --- | --- | --- |
| Cereals  | Tubers | Legumes | Others (specify) |
| Maize | Cocoyam | Soy bean |  |
| Millet | Sweet potatoes  | Groundnut |  |
| Sorghum |  |  |  |
| Rice  |  |  |  |

1. Does your child have his/her own bow or eats from family pot? a) Own bowl b) family pot
2. Who prepare food for child?

a. mother b. Father c. siblings d. others (specify) ………………………….