



**ASSESSING FACTORS INFLUENCING COMPLEMENTARY FEEDING
PRACTICES OF MOTHERS WITH INFANTS 6-23 MONTHS IN NSUKKA LGA,
ENUGU STATE, NIGERIA**

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Abstract

Complementary feeding is important in an infant's first one thousand days of growth. This study aims at investigating the factors influencing complementary feeding practice of mothers in Enugu state Nigeria. A descriptive and explorative analysis was used to collect data from 10 mothers that has infants 6-23 months using a purposeful random sample by balloting without replacement. An in-depth interview was carried out to get information from mother experiences and practice of complementary feeding (CF). The data was analyzed using the mathic analysis. Three keys were used: "Complementary feeding practices (CF)", "individual prospective and social support". Result shows different practices of individual, different individual mother's belief and the importance of support systems. The feeding regimes gave insight to the different complications of CF practices. The study recommends the need for a targeted educational programs and good support systems for the enhancement of complementary feeding practices in the study area.

Keywords: Complementary feeding, infant, assessing, practices, experience

Introduction

Complementary feeding is the transition from breast feeding to other foods. It is the foods given to an infant alongside with breast milk. During the period of complementary feeding, a baby gradually becomes accustomed to eating family foods. Complementary feeding is not a single event but cumulative process that begins at the age of 6 months and extended to the age of 2 years. (WHO, 2006). Nutrition in early life has the greatest influence on infant growth, Development and survival (Michaelsen, 2015 in Chukwuemeka, 2021). Inappropriate nutrition in an infant's early life is the major causes of malnutrition. Malnutrition is diverse and inter-related yet inadequate dietary intake during the complementary feeding period is considered to

be major contributing factor effecting there growth and development. Nigeria has the second highest level of malnutrition in children after India. (UNICEF, 2011 in Chukwuemeka, 2021). The first two years of life provides an opportunity for the infant to achieve maximum growth potential but at the same time critical periods for growth faltering if the nutritional needs are not attainable. Ezziati & fawzi (2015) in Chukwuemeka, (2021). To attain these nutritional requirements, complementary foods need to contain all the essential nutrients that are appropriate to facilitate optimal growth, development and needed feeding frequencies.

In Nigeria, infants/children constitute 45% of the total population, the country's infant mortality rate of 114 per 1000 live births is among the highest in sub-saharan Africa and the mortality among children under five years of age is as high as 300 per 1000 in some parts of the country, WHO also reported that malnutrition is contributing more than half (53%) of under five deaths in Nigeria. WHO, (2010) went on to report that 19% of 10.8 million children's death globally in a year can be attributed to iodine, iron, vitamin A and zinc deficiencies. The prevalence of under-five malnutrition was 27.2% in 2002, 25.7% in 2004, 26.7% underweight in 2008 and 41.0% stunting in 2008. World bank (2008) in Chukwuemeka, (2021).

Optimal breast feeding cannot ward off malnutrition if the child is not fed with adequate complementary food with adequate feeding practices. Rural communities in developed countries, do not incorporate fruits and vegetables during complementary food formulation Hence, the cause of micro nutrient malnutrition. Food supplementation is one of the ways to address this micro malnutrition. Traditional complementary foods can be supplemented with legumes animal source food ASF, fruits and leaf vegetables to improve their nutrient content and then followed by appropriate.

The above components if placed properly can ward off micro nutrient malnutrition in infants. The main objective of this work is to use a well tailored investigation to find complementary feeding practices among women of child bearing age with infants 6-23 months through investigation of individuals using interview method.

Study Area

The study was carried out in Nsukka LGA of Enugu state, Nigeria. It has an area of 1.810 km², National Population (2006).

Study Design

The study was a descriptive and explorative analysis of complementary feeding practices and the factors influence them base on Health Benefit Model (HBM) a theoretical frame work. A purposeful random sampling by balloting without replacement was used to choose 10 mothers

with children 6-23 months from a village in Opi town in Nsukka L.G.A of Enugu state. The eligible 10 mothers were selected and compiled based on the growth monitoring records in Ibeku Health Centre in Opi town. This was made possible by the assistance of community health workers also called cadres.

Inclusion and exclusion criteria

Participants were included based on the following:

- a. The person must be either parents or full time care giver that has children infants 6-23 months.
- b. The person must reside within Ibeku Opi.
- c. The child must be in good health.
- d. Participation in the study was voluntary.

Procedure for the study

A semi-structured face to face interviews to get into participant's personal experiences and perspectives was done once the person is eligible. The researcher initiates contact through messages or phone calls. This was used to arrange for convenient time for the interview, the scheduling of the interview was based on the participants availability. The participants engaged in-depth interviews with each of our researchers with the corresponding author as head. Each interview lasted for approximately one hour.

Data collection

The interview takes place in the participant's home or wherever he or she chooses for comfort purposes and also for the safety of the confidential message taped. This was anonymised (data does not identify individual) by assigning a unique identification number to each record transcript and the note set aside. A set of six detailed opened questions were used to elicit information from the respondents. They are:

1. At what month did you introduce solid food to your infant, can you recall?
 - a. Can you describe your baby's eating routine?
 - b. Does your infant accept solid food before or after walking?
 - c. Do you give breast feeding or commercial formula milk at the beginning, please is it possible for you to give a detail of the child's break fast, lunch and dinner status?
2. Do you remember any barriers, challenges you have encountered in the course of complementary feeding if any give detail?
3. Is there any specific benefit in your child or else where you have seen in complementary feeding practices? Please kindly explain in detail.

- a. Do you think that the preparation of complementary foods(CF) and feeding in a good hygienic condition help to prevent child/infant infections?
 - b. Can providing energy dense complementary foods (EDCF) will help to reduce the risk of child malnutrition?
 - c. Do you understand and also believe that giving a variety of food and keeping to an appropriate feeding frequencies based on the child's age can reduce the likelihood of malnutrition in infants?
4. Do you have any aspect of CF practices that makes you feel vulnerable?
 5. Are you confident in yourself when it comes to managing the portion sizes, food variety and feeding frequencies CF?
 6. Do your husband support you and other family members when practicing CF, if they do, can you throw more light on how they do so?
 - a. Do you receive support from peers or GDRE members at this stage of CF practices? If you do can you help us know more about their support?
 - b. Do you get any support or guidance to facilitate CF practices? If any help off or not please elaborate on how they support and assist.

Characteristics of participants

The research procedures was completed by ten mothers and their children. It involved mothers aged 25-40 years. 3 mothers at the age between 25 and 35 years, while 7 mothers are between 36 and 40 years. In their education background, 7 had a bachelor's degree, 2 had junior and senior WASC respectively, while 1 had a masters degree. 3 of the mothers were unemployed while 37 were unemployed. The gender distribution of the children were 6 females and 4 males. The children's age were 6-23 months. 5 of them were 6-9 months, 2 were 10-12 months and 3 were 13-23 months of age.

Time for the introduction of complementary foods

Complementary feeding was introduced at varying stages,

- 2 children got it at 5 months
- 6 children got it from 6 months
- 2 children from 7 months of age

The nutritional assessment of the children were based on the weight-for-Age Z scores goes as follows:

- 1 child/infant is underweight
- 1 is obese
- 8 is classified as having normal weight

Height-for-age status Z scores indicated

- 3 infants/children as stunted
- 4 as normal height
- 3 as severely stunted

Data Analysis

The interview statements were transcribed to English because some women spoke in their native language, some used pigin language and a few used English language. The transcribed and the transcripts were later cross-checked by comparing them with the original interview records and also took into account the field notes from each interview. The manual coding were later done and applied consistently to the whole transcripts.

Ethical Clearance

Ethical permission to do the was gotten from the ethical clearance committee university of Nigeria teaching hospital (UNTH) Ituku Ozala in Enugu state with the number NHREC/05/01/2008BFWA00002458-IRB00002323. Informed consent was taken from all the participants after full explanation of the natural purpose and procedures to use in the study. This is a self sponsored research work.

Results

The study investigated the main aspects of complementary feeding FC in Nsukka L.G.A in Enugu state Nigeria. It revealed some ideas and aspects of CF, individual prospective, social support dynamic among mothers in the L.G.A and come up with the following findings: - Complementary feeding CF practices: varied approaches by mothers and care givers were taken. A mother said that she started giving fortified porridge from 7 months old. Another mother said that she prepared basic family meals like rice, she added egg and shredded meat for breakfast, gives vegetable soup at noon and then skips dinner. This also depends on some families. A mother said that she do not combine her child's food with the family food, because if it finishes she cannot use the commercial complementary food because of the excessive processing and commercial preservative. The mother described varied approach to their complementary feeding practices mainly with home-made meals.

A participant mother 6, 38 years, 15 months stated that, "I gave my child fortified porridge from seven months", "Breakfast is something simple, rice, egg, and shredded meat. At non vegetable soup. Yes I used rice... children rarely eat dinner; it depends on when they go out so they eat together. If at home she gives simple soup or clear soup or clear vegetable". Participant

2, 33 years, 9 months. *Mothers reported the meal frequency for their children. The mothers generally report that meal frequency of their children is time daily, they made adjustments depending on the mode and routine. A mother stated that her child usually had three meals depending if the child is not fussy and sleep coinciding with the meal time, at times, she, managed to feed twice daily.

A mother said that at times she forget to feed her child yet she would ensure that the child still receives all three meals which might lead to feeding later than usual. At times, wakes the baby at night to feed him or her.

“My child eats three times daily, but if she’s really fussy, and sleeping time collides with eating time, the child goes to sleep, that makes the infant eat twice a day. Participant 4, 31 years, 9 months. “My child always eat three times a day. If I forget to feed my child or even though it was late I still fed him. Participant 6, 38 years, 15 months”.

“Mothers preferred non-dairy animal source for their children” mothers exhibited different preference when it comes to providing non-dairy animal sources for their children. One mother avoided giving her child beef, opting instead to serve rice accompanied with crayfish. Another mother included beef in her own child’s CF with chicken liver, chicken meat and vegetable varieties, carrot, scent leaves, curry leaves, (celery and leeks) at times, if available. “I have not given my child beef. Usually, I serve rice with crayfish, participant 4, 31 years, 9 months.”

“At the moment, I am still giving a menu of beef, chicken liver, carrot, scent leaf, curry leaf, (celery and leeks) at times, if available; I also give chicken liver with chicken meat” participate 3, 33 years, 7 months.

“Mothers allowed their children to eat sweet and beverage” mothers expressed varied preferences for their children’s food choices. A mother mentioned that her child enjoyed sweet foods like sweet potatoes, sweet candies. Another mother stated that her child was offered sweet potatoes and sweet candy, but did not show any sign of liking it or any other sweet snacks. That the child prefers traditional home-made foods like mixed vegetable corn dish, mixed legume and dry cocoyam dish, bambaranut pudding and soymilk pap.

“My child likes to eat sweet foods like sweet potatoes, sweet candy.” Participant 2, 33 years, 19 months. “My child was once again given sweet potatoes with red oil and another day sweet candy but does not crave for sweet things. Prefers traditional snacks like bambaranut pudding, akara balls” participant 6, 38 years, 15 months.

Approaches by different mothers to giving unhealthy food to their infants/children.

A mother reported that her son was given food of high sodium status (soymilk and fried sweet plantain) by his older sister, in spite of this, though children crave for fried plantain, the child did not develop liking for the food. Another mother said she is yet to introduce any high sodium (CF) in form of snacks.

“Participant 10, 30 years, 8 months, I have not introduced any high sodium snacks. “My son was introduced to eating high sodium fried sweet plantain by his older sister, but he doesn’t like it” participant 9, 27 years, 10 months.

Barrier faced by mothers such as lack of cooking skills, baby resistance and complicated food preparation.

Many of the mothers faced significant challenges that impacted their ability to consistently prepare and provide meals for the infants/children. One of the barriers is time constraints, especially with mothers that have multiple responsibilities. She expressed frustration with the time intensive process of preparing CF which has to do with blending, filtering, etc to achieve the right texture and non-fibrous food. Her busy schedule and exhaustion especially in the evenings lead to the purchasing of ready-made foods like vegetable corn mill porridge. Another stated that she set aside at least two days to cook all that she needs and freeze. She can reheat when the need arises. This helped her manage her time better without giving consideration to the freshness of the food and nutritional quality. Skills of cooking possess a challenge also. A mother admitted to lack of confidence in her ability to make nutritious meal for her child and most times, baby refuses the food.

“I have time constraints, I cooked for my other children and husband, infants own must be mainly blended food, filter to adjust texture. It takes a long time; I do it at night, when I am already tired. So based on this I buy ready made foods like vegetable corn meal porridge” Participant 2, 33 years, 19 months (34 years, 6 months).

“I cooked it once for two days, so I put it in the freezer and then when I want to eat, I heat it up” Participant 3, 33 years, 8 months.

Mothers feel the positive benefit when they introduce complementary feeding (CF)

The introduction of complementary feeding was met with positive and advantageous feedback from mothers. They signify improvements in their children’s behavior and development. The mother observed satisfaction of the child/infant’s nutritional needs that leads to increased comfort and emotional stability (baby do not cry non-stop and sleeps well). Another mother talked about observable benefits like anthropometric indices (positive weight-for-age), increased activity (positive height-for-age) that leads for more frequent bubbling, toddling and ability to walk without much discomfort.

“Increased weight and increased height” the child also became more active and babbles a lot”
Participant, 33 years, 7 months.

Different levels of confidence to complementary feeding food preparation process.

Mothers show varying levels of confidence in their ability to prepare complementary foods for their infants/children reflecting on events or individual encounter that gives her self-reassurance. She demonstrated high level of confidence in her approach, stating that she carefully adheres to recommended portions sizes and frequencies of feeding and as always monitors her child’s growth always at the health centre.

Another mother has a different view, she does not care whether a child accepts or eats the food she prepares because of the needed food items; all she knows is that she has the confidence that the child/infant must eat what she prepares.

“I always quickly prepare soymilk pap porridge based on the portion size and frequency of my feeding infant/child. I go to health centre monthly to check the growth in weight and height ”
Participant 3, 33 years, 7 months.

“I have this fear each time I cooked solid food by myself, yes the fear is always there of not having enough carbohydrate or enough proteins, the fear is always there” Participant 4, 31 years, 9 months.

Different ideas of participants regarding weaknesses/vulnerabilities when mothers did not focus on food hygiene, energy-dense food and frequency of complementary feeding CF.

Different views of mothers on the risk of not focusing on food hygiene, energy-dense nutrition and the frequency of complementary feeding. Some of them agreed on the importance of food hygiene believing that proper cooking and handling might reduce the risk of infections. The problem of malnutrition was raised and mothers agreed that small portion sizes and nutrient-poor diets had lead to weight loss among them, some differed on the importance of frequency and variety of foods. A mother said that less frequency and variety of complementary feeding might not have caused malnutrition in that the immune of the infants/children differed. Another believed that as long as breastfeeding continued the frequency of complementary food is less important. A mothers view differed, she said that feeding energy-dense foods were not essential and that the introduction of animal proteins was more important, suggesting that variety of diet might not have been necessary for every infant/child.

“Ok, I feel that preparing hygienic solid food can prevent infant/child infection”. Participant 4, 31 years, 9 months.

“I feel that energy-dense food can reduce malnutrition in infant/child because what I give yesterday has less nutrient-dense and the portion size is also small. My baby loses weight today” Participant 2, 33 years, 19 months.

Special support

Husband's involvement in complementary feeding processes. Husband's involvement varies among families. It shows diverse levels of engagement and support.

Some mothers, their husbands play an active and supportive role while some mothers experience some limitation in husband based on some internal factors, some mothers depend on alternative sources of help. These make some aunts and mothers help to be an important assistance to feel the husbands less involvement.

"My husband actually supports/helps in the process of CF. he blends babies foods and most times feeds the infants" Participant 3, 33 years, 7 months.

"My husband's mother rarely is a great help to feed our baby because my husband goes out in the morning and comes back late" Participant 5, 34 years, 6 months.

Limitations from peer or cadre in the community support for complementary feeding. Support from community cadres and health centers at times not adequate. In spite of the cadre potential role, they mostly focus on issues of anthropometric indices instead of specific guidance on CF. The peer support varied, some depend on online discussions, sources and guidance and some information shared by mothers, either at health centre, church organization.

"Cadres support has not been maximized, I am also a cadre but it is that we've always been talking about stunting; in reality, the cadre do not have enough nutritional education on how to go about most of the nutritional challenges in some health facilities". Participant 1, 32 years, 10 months.

"I have not exchanged with anybody on CF. I go online and Google for myself whatever information I felt like copying". Participant 10, 30 years, 8 months.

Insufficient support from community health centers especially from health care workers.

Community health centers such as Nsukka Health Centers, also fell short in offering comprehensive education on complementary feeding. A lot of participants reported that these centers mostly focus on basic services like anthropometric indices and immunization with little to no nutritional education (CF). some mothers at time receive advice from health officers like mid wife, the support was not systematically carried out.

"There is no proper education about complementary feeding at the study area, only weighing and immunization. Participant 2, 34 years, 7 months".

"I received education once from a mid wife because my child was underweight for his age. He was given bambaranut pudding, she gave me in between menu suggestion". Participant 10, 30 years, 8 months.

Discussion

There are positive changes in health and behavior of children as a result of introduction of complementary feeding. However, many of the mothers faced some challenges such as time constraint, lack of cooking skill, problems associated with infant's food preferences etc. Self efficiency affects the mother's ability to implements decisions-making process in terms of complementary food preparations. This study showed that mothers are concerned about hygienic protocols when preparing complementary food to avoid infections. There are varied opinions in energy-dense complementary feeding. A study in Ghana showed mothers positive and negative effects of adequate complementary food and feeding practice, mothers adopt different approaches to complementary feeding based on their means and available resources (WHO, 2011). Husband's involvement in complementary feeding practices vary among participants. Mothers expressed very good appreciation if their husbands were more involved and very supportive. Husbands involvement alleviate and successful feeding process. This type of mothers give adequate Intel and avoid junk foods. Most mothers in the study exchanged ideas and information with their peers and acquaintance while some prefer online information about (CF). The study shows the need/importance of community nutrition experts/counselors who are responsible for offering variable support to primary care givers to enable women make informed decision about their infant nutrition activities. This result is in line with the emphasis of WHO. The study exposed diversity of respondents responses as a result of the quantitative research employed which gave room to in-depth exploration of the complementary feeding practices and factors affecting/influencing them.

Conclusion

The study gave insight to the practices, individual beliefs and social support that is related to complementary feeding practices (CF) in a named setting. The result brought out the obstacles, the value of strengthening support, the need to enhancing peer and health care professional assistance and consideration of personal dietary approaches. The measure are essential to effective implementation of complementary feeding practices, advanced child nutrition and development in population. To improve complementary feeding practices it is important to develop and implement education and training programs that focuses on basic cooking skills particularly for mothers and care givers for the preparation of healthy complementary foods. This should be a practically oriented accessible having in mind the mother's time constraint. Integral incorporation of healthy education into the program is important, this should include proper food handling, preparation techniques to avoid infecting the infants via the food. There should be a proper channel/guideline on how to incorporate beneficial energy-dense foods in infants diet to be accessed either online or community nutrition professionals Involving fathers in nutrition education and meal preparation should be a big assistance in CF. mothers should have a bit of relief and more effective practice encouraged. Community nutrition experts and counselors should be incorporated into health center programs for appropriate support. There

is a need to develop a community based nutrition programs that will be continually assessed to the needs of the population. When these recommendations are implemented, policies and practices related to them can improve complementary feeding practices (CF) among the women population in the study area thereby enhancing better health outcome for the infants.

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