

## HEALTH CHALLENGES AND BENEFITS OF FEEDING PATTERNS PRACTICES AMONG INFANTS IN NEMBE BAYELSA STATE

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### ABSTRACT

*The aim of this study is to explore Health Challenges and Benefits of Feeding Patterns Practices among Infants in Nembe Bayelsa State Nigeria. The study examines complementary feeding, bottle feeding and exclusive breast feeding. To guide the study, three research questions and hypotheses were formulated. Two sampling techniques were adopted; random sampling technique and purposive sampling technique which was used to select 365 respondents. The data for this study were gathered mainly via two methods; questionnaire and interview. The findings revealed that complementary feeding on the infant health indicates that 26 percent (26%) of the mothers fed their babies with complementary feeding. 21 percent (21%) experience diarrhea while 9 percent (9%) says their babies' poo worm at the period of 6 months. The resultant effect of these infections usually, is poor growth and development, on bottle feeding and infant health, indicates that 5 percent (5%) of the respondents responded that they feed their babies with formula milk without breastfeeding while 4 percent (4%) said their babies are overweight. The findings also revealed that insufficient breast milk and inability of breast milk to satisfy infant were the most frequent reasons for early introduction of complementary foods. On the other hand, exclusive breastfeeding accounted for 17 percent (17%), that is, they feed their babies with breast milk only, which means that their babies did not experience, diarrhea, pneumonia, weakness, worm was not also found among the babies. The findings also show that there is a strong relationship between exclusive breastfeeding, complementary feeding, and bottle feeding. It is recommended, among others that the golden hour is an hour after birth is an important hour lactating mothers must initiate breastfeeding to her baby and must go by exclusive breastfeeding to enhance infants healthy growth and development as well as efficient development of the brain and relieve the baby from diarrhoea, pneumonia and meningitis from the first six month and also untimely death.*

**Keywords:** Health Challenge, Complementary Feeding, Exclusive Breastfeeding, Nembe, Bayelsa State.

## Introduction

Exclusive breast feeding is when infants only breastfed since birth, no water, formula or liquid supplement. Breastfeeding culture is well enshrined in the various ethnic groups in Nigeria but the low practice of exclusive breastfeeding persists. The Nigerian Demographic Health Survey in Nigeria, 2008 showed that only 13% of children below six months are exclusively breastfed while 87% of Nigerian infants below six months receive complementary liquids or foods. Only 19% (136) of the breastfeeding mothers whose infants were below or up to six months of age in this study practiced exclusive breastfeeding. There are variations in the exclusive breastfeeding rate found in this study compared with others. The variations in the prevalence rates may be due to the sample size and design adopted.

However, the low practice of exclusive breastfeeding remains a concern, especially with the high level of awareness as revealed in the initiation rate and perceived benefits associated with breastfeeding, (NDHS) (2008). Breast feeding enables the mother and child to interact more fully than bottle feeding as breast milk supplies substances, which protect the baby against infections especially gastro – intestinal infection, respiratory infections and viral infection. Breast milk to a large degree protects baby against allergic disorders, especially asthma and eczema. Ipso facto, WHO, (2002) recommended that infants should be fed with breast milk alone between the period of 0 – 6 months. The content of the solid food is not as rich as the breast milk and also is a cause of health challenge among the infants. Complementary feeding is the process of introducing solid and semi – solid food to infants above six month. At this point, the nutritional content of the breast milk is not enough to satisfier the baby hence, nursing mothers are advised to complement the breast milk with solid or semi – solid food. However, any moment a baby below six month is offered solid or semi – solid food is unhealthy and is against the advice of World Health Organization. Some of the reasons nursing mothers commence complementary feeding are; mothers felt that the breast milk is not enough when the baby cries due to ignorance and also because the maternity leave has ended.

Furthermore, bottle feeding is another method of feeding an infant in which, bottle fitted with teat (nipple) containing expressed infant formula. And nursing mother adopt this method because;

mothers cannot breastfeed, the baby is unable to suck efficiently and when mothers return to work or school. Globally, sixty percent (60%) of the 10.9 million infants and young children death occur annually due to inappropriate infant feeding practices and infectious diseases where two – thirds of these deaths are attributed to suboptimal breastfeeding practices, (Ethiopia Demographic and Health Survey, 2011; UNICEF and World Health Organization, 2003).

Essentially, the nonchalant practice of exclusive and nonexclusive feeding patterns among lactating mothers has become a concern as the rate of nutrients deficiency which unfolded health

challenge among infants in the country instigated scholars to investigate and it was found that mothers who practice exclusive breastfeeding ranges between 19 – 70 %, Agunbiade and Ogunleye (2012), Ukegbu, Ebenebe, Ukegbu and Onyeonoro (2011) and Ogbonna and Daboer (2007). More research was still carried out on exclusive breastfeeding alone and the founding revealed that 37 % in Anambra State (Ukegbu, Ebenebe, Ukegbu and Onyeonoro, 2011). Another study reported 60 % in Calabar Cross River State, 56.8 % among rural women in Imo State and some studies in South Western Nigeria reported much lower prevalence (19 %) of exclusive breastfeeding (Agunbiade, and Ogunleye, 2012).

Conversely, the health of the infants is threatened and become a public health concern in Nigeria due to nonexclusive breastfeeding pattern particularly in Nembe Local Government Area of Bayelsa State. UNICEF (2011), painfully reported that over fifty three percent (53%) of death in children less than 5 years is attributed to poor feeding patterns

Infants of 6 – 59 months old suffer the largest burden of malnutrition due to stunting as indicated by national survey statistics and since 2013, stunting rates have been above 30 % with many states in the North west and North east recording over 40 % prevalence above the WHO critical levels NDHS (Nigeria Demographic and Health Survey) (2014). Multiple Indicator Cluster Survey (MICS), 2016/17; National Nutrition and Health Survey (NNHS), 2018). Most of the health challenges among infants are: diarrheal, pneumonia and obesity.

Diarrheal is a morbidity frequent and profuse discharge of loose or fluid evacuations from the intestine without a purging or looseness of the bowels.

Pneumonia is an acute respiratory disease marked by high fever and cough caused by mycoplasma, primarily affect children and young adult.

Obesity is a condition characterized by the excessive accumulation and storage of fat in the body

This study is to investigate health challenges and benefit of feeding patterns among infants in Nembe Bayelsa State. It bridges the gap by sourcing its data from rural primary health center which no researcher has deem it fit to source its data from because of the terrain difficult accessibility.

Information from this study can be used for policy making intervention, monitoring and evaluation of nutrition programmes by government agencies, international organisations (such as WHO), legislators, Federal and State governments

#### **Objectives of the study are:**

1. To establish the relationship between complementary feeding and health challenges among infants of 0-6 months in Nembe Local Government Area.

2. To examine the relationship between bottle feeding and health challenges among infants of 0-6 months in Nembe Local Government Area.
3. To determine the association between exclusive breast feeding and health challenges among infants of 0-6 months in Nembe Local Government Area.

**To guide this study the following research questions were put forward:**

1. What is the relationship between complementary feeding and health challenges among infants of 0-6 months in Nembe Local Government Area?
2. What is the relationship between bottle feeding and health challenges among infants of 0-6 months in Nembe Local Government Area?
3. What is the association between exclusive breast feeding and health challenges among infants of 0-6 months in Nembe Local Government Area?

**The following hypotheses are postulated**

1. There is no significant relationship between complementary feeding and health challenges among infants of 0-6 months in Nembe Local Government Area.
2. There is no significant relationship between bottle feeding and health challenges among infants of 0-6 months in Nembe Local Government Area
3. There is no significant relationship between exclusive breast feeding and health challenges among infants of 0-6 months in Nembe Local Government Area.

## Literature Review

### Complementary Feeding Pattern Practices

Complementary feeding means giving other foods in addition to breast milk and these other foods are called complementary foods. During the period of complementary feeding, a baby gradually becomes accustomed to eating family foods. At the end of this period (usually at around the age of 2 years), breast milk is entirely replaced by family foods, although a child may still sometimes suckle for comfort. There are two kinds of complementary foods, specially prepared foods and usual family foods that are modified to make them easy to eat and provide enough nutrients. Mashing a child's food is an example of which a mother may specially prepare porridge for her is easier for the baby to eat, while the rest of the family eat cassava and groundnut stew. When the

child is a little older, the mother will give the cassava mashed in the stew. Mashing modifies the consistency of the family food, making it easier for the child to eat. Family meals can also be modified by adding something extra, for example adding a piece of mango to give extra vitamin A, or liver for extra iron, and oil or margarine for extra energy.

Complementary feeding practices of a child according to WHO (2002) begins after the first six months of a child's life; after the period of exclusive breastfeeding. Around the age of 6 months, an infant's need for energy and nutrients starts to exceed what is provided by breast milk and complementary foods are necessary to meet those needs. An infant of this age is also developmentally ready for other food. If complementary foods are not introduced around the age of 6 months or if these are given inappropriately infant growth may falter.

According to Onofiok and Nnayelogu (1992), it begins with the introduction of softer, easily swallowed food to supplement the child's feeding early in life. When the child is finally introduced to the family diet, he or she may not be able to eat enough of the adult diet to meet his or her nutritional needs.

### **Bottle Feeding and Infant Health**

The practice of feeding an infant a substitute for breast milk as Pediatricians generally advice exclusively breastfeeding (that is, breastfeeding with no supplementary formula) for all full-term, healthy infants for the first 6 months of life. However, many infants are bottle-fed today, at least in part, for infants to achieve normal growth and maintain normal health, infant formulas must include proper amounts of water, carbohydrate, protein, fat, vitamins, and minerals ([Mahak, 2019](#)).

Breast-milk fat contains long chain polyunsaturated fatty acids (docosahexaenoic acid or DHA, and arachidonic acid or ARA) that are not available in other milks. These fatty acids are important for the neurological development of a child. DHA and ARA are added to some varieties of infant formula, but this does not confer any advantage over breast milk, and may not be as effective as those in breast milk.

Infant formula is usually made from industrially-modified cow milk or soy products. During the manufacturing process the quantities of nutrients are adjusted to make them more comparable to breast milk. However, the qualitative differences in the fat and protein cannot be altered, and the absence of anti-infective and bio-active factors remain. Powdered infant formula is not a sterile product, and may be unsafe in other ways. Life threatening infections in new-borns have been traced to contamination with pathogenic bacteria, such as *Enterobacter sakazakii*, found in powdered formula. Soy formula contains *phyto-oestrogens*, with activity similar to the human hormone oestrogen, which could potentially reduce fertility in boys and bring early puberty in girls

## Breast Feeding Practices

Universally, the World's Health Organization recommends breast feeding as the best way of feeding infants (United States Breast feeding Committee, 2002) due to its numerous short-term and long-term benefits to both mother and child. Several studies have highlighted countless benefits of breastfeeding for infants, mothers and the society as well. Breast feeding reduces the risk of varieties of acute and chronic disorders as otitis media, obesity, hypertension, gastroenteritis, respiratory illness and even sudden infant death syndrome during infancy (American Dietetic Association, 2009). Reports of studies from developing countries show that non breast-fed infants are 6-10 times more likely to die from diarrhoea and pneumonia in the first month of life (WHO, 2002; Bachrach, Schwarz and Bachrach, 2003) than breast fed infants. The risk of breast and ovarian cancer, Type 2 diabetes, and postpartum depression in mothers is reduced.

Breast milk is the most complete nutrition source and remains the simplest and healthiest feeding method that meets nutrient requirement of infants. While reducing infant mortality, it creates a strong bonding between mother and child. Adequate breastfeeding improves the mental and motor development of infant and protect infants against obesity and metabolic diseases in adult life. Breast milk contains an important substance "Gold liquid" or colostrum. It is the first thick yellow coloured fluid synthesized by the breast for the baby immediately after birth. The high concentration of beta-carotene, a precursor of vitamin A in the colostrum is responsible for the yellow colour. Studies have shown that, though limited in the amount obtained, colostrum is rich. This vitamin is required for protection against infection and early retinal development, nutrients and substances infant require in the first days of life (United State Department of Agriculture, 2011). Known as "gold liquid", colostrum contains adequate amount of proteins, fat-soluble vitamins, minerals, and immunoglobulins A- sIgA. The IgA protects the infant's immune system by identifying and destroying foreign bodies as microbes (USDA, 2011). Furthermore, the presence of white cells and lactose in the colostrum helps to prevent infection and hypoglycaemia in the infants while allowing the new-born to pass meconium easily (Naylor *et al.*, 2009). This in turn, promotes the excretion of bilirubin. Another important advantage of colostrum is that mothers' will have less blood loss because the uterine contracts as the baby suckle. The feasible benefits of exclusive breast feeding are, breast milk is easy to digest, it is natural free from germs, and etc.

## Diarrheal Disease and Health Challenges among Infants

The world health organization (WHO) defines diarrhea as the passage of three or more loose or liquid stools per day in a period not exceeding 14 days (WHO, 2013). Diarrhea is commonly a sign of an infection in the intestinal tract that is caused by different bacteria, virus and parasitic entities. In low resource areas, Rotavirus and Escherichia coli bacteria cause the highest incidents

of diarrhea (UNICEF, 2016). These microorganisms spread throughout unclean water and contaminated food or from one person to another, and are most widespread in settings with poor hygiene and absence of access to clean drinking water and sanitation. Diarrhea continues to be one of the leading causes of child mortality, mostly in children less than 5 years of age living in low and middle-income countries (Rosenberg, 2007). Daw, (2025).

### **Pneumonia Disease and Health Challenges among Infants**

Pneumonia is a form of acute lower respiratory tract infection that occurs when viruses, bacteria or other micro-organisms cause inflammation of the lungs. The WHO defines childhood pneumonia as the presence of cough and/or difficult breathing with an elevated respiratory rate (Spence et al., 2017)

Globally, pneumonia is one of the leading causes of death amongst children under five years of age. It is estimated that 15% of all child deaths can be attributed to pneumonia (Spence et al., 2017). In developing countries more than 150 million new cases occur in children under 5 years annually. About 20 million of them severe enough to require hospital stay. WHO stated that two thirds of deaths due to pneumonia occur in infancy and about 90% occur in developing countries. In Egypt, pneumonia accounts for 11% of deaths in children under 5 years old.

### **Obesity Disease and Health Challenges among Infants**

The increasing prevalence of childhood obesity is of global severe public health concern and considered a worldwide epidemic by the World Health Organization (WHO, 2017). The number of overweight or obese infants and young children (aged 0 to 5 years) increased from 32 million globally in 1990 to 42 million in 2015. In the WHO report for African Region alone, the number of overweight or obese children increased from 4 to 9 million over the same period. The vast majority of these overweight or obese children live in developing countries, where the rate of increase is 30% higher than developed countries. This current trend of growth in overweight or obese infants and young children if not controlled or curbed will lead to an increase of 70 million globally by 2025. Childhood obesity is one of the six global nutrition targets aimed at improving maternal, infant and young child nutrition by 2025 which was agreed upon at the 2012 World Health Assembly. Studies have reported a significant relationship between exclusive breastfeeding (EBF) and childhood obesity, and the world health organisation also recommended exclusive breastfeeding as one of the preventive measures against childhood obesity.

Obesity in childhood is associated with a wide range of serious health complications and an increased risk of premature onset of illnesses, including diabetes, dyslipidemia, orthopaedic disorders psycho-social issues and heart disease (Black et al.,2013).. Obesity affects the health and quality of life of individuals, both in short and long terms; thus exclusive breastfeeding from birth

to 6 months of age is an important way to help prevent infants from becoming overweight or obese (UNICEF, 2014).

## **Theoretical Framework**

### **Multifactorial Theory**

The major proponents of this theory are, Sydenham (1644) and Sir William Osler (1849 – 1919). This work adopted multifactorial theory to support the peculiar health challenge infants suffer from complementary and bottle feeding in Nembe Bayelsa State. Disease is not a single factor cause but multifactorial. As a result of advances in public health, chemotherapy, antibiotics and vector control, communicable diseases are reduced. This was replaced by many modern diseases namely lung cancer, coronary heart disease, mental illness, diabetes etc. which are not caused by any germs or can be cured or prevented by the traditional method of isolation, immunization or improvements in sanitation. This lead to the realization that single cause idea was an over simplification and there are other factors causing the disease viz.: Social, Economic, Cultural, Genetic, Psychological and Nutrition.

Sydenham (1644-1689), often- called the English Hippocrates, first gave the important thought that there are different specific things which should be held responsible for different diseases. Sydenham held that disease was the result of the effort made- by the body to throw off, to expel these dead materials within it,' which had made the trouble.' The important result of Sydenham's studies was that a little close intelligent observation upon the part of the doctor is worth more than any amount of dosing administered in blind observance of a preconceived notion. It was a step away from the four humours and from other artificial, theories. In short, Sydenham did much to teach the medical profession the value and importance of "studying the case." Sir William Osler (1849-1919), a legendary medical teacher and physician wrote: "The practice of medicine is an art based on science, working with science, in science and for science."

Ipsa facto, disease causative/ etiology are so many such as, genetic, nutritional, immunological, metabolic, cytological according to its kind. In this case the cause of the disease is nutritional ((complementary feeding and bottle feeding using formula milk) to the infants in the name of feeding.

### **Method**

This study adopted descriptive survey research design. According to kothari, (2004) a research design guide and direct how data is collected, measured and analyzed. The respondents that constituted the study sample was 355. This number is determined by the Aloysius (1998) technique. It is stated below;

$$S = \frac{Z^2 \times p(1-p)}{E^2}$$

Where:

S = required sample size

Z = confidence level at 95% (standard value of 1.96)

P = estimated prevalence of malnutrition in the area

E = margin of error at 5% (standard value of 0.05).

Figures for malnutrition as reported by 2014 NDHS (Nigeria Demographic and Health Survey) National Population Commission (NPC) and Macro (International) ICF, 2014) malnutrition indicators in Nigeria are as follows: stunting = 37 %, severely wasted = 21% and underweight = 18 %. Taking data for severely wasted and underweight, the formula above is used to calculate the sample size.

S=?

$$Z^2 = 1.96^2$$

$$P = 0.21 + 0.18 = 0.39$$

$$E^2 = 0.05^2$$

$$S = \frac{1.96^2 \times 0.39(1-0.39)}{0.05^2}$$

$$S = \frac{3.8416 \times 0.39(1-0.39)}{0.25}$$

$$S = \frac{1.498224(1-0.39)}{0.25}$$

$$S = \frac{(1.498224 - 0.61)}{0.25}$$

$$S = \frac{0.888224}{0.25}$$

$$S = 355$$

Nembe local government has 27 health institutions, out of which 25 was randomly selected and purposive sampling method was adopted by administering the questionnaire to the lactating mothers whose baby's age fall between 0 – 6 months of the twenty five sampled health care. The data was coded, entered and analysed using Statistical Package for Social Sciences (SPSS VERSION 25). Frequency and simple percentage were used to present the demographic characteristic of the respondents. The Pearson Product Moment Correlation (PPMC) was used to test the hypotheses. The level of significance ranges from – 1 to +1 and closer the r value to +1, the stronger the relationship between the variable under study. Strength and direction of Pearson (r) value of interpretation and relationship is as follows:

Between 0.0 and  $\pm .25$  - zero to weak relationship

Between  $\pm 26$  and  $\pm 50$  moderately weak relationship

Between  $\pm 51$  and  $\pm 75$  moderately strong relationship

Between  $\pm 76$  and  $\pm 1.0$  strong to perfect relationship.

The substantive issues of the questionnaire is validated by Medical Sociology and Demography unit under Sociology Department. The internal consistency of the instrument was established by Cronbach Alpha reliability. A pilot study was conducted on 28 respondents outside as a trial who are not expected to be part of the main study. The data collected was subjected to Cronbach's reliability analysis and reliability coefficient at 0.81 which confirm the reliability of the instrument.

### **Date presentation**

**Research question I:** What is the relationship between complementary feeding and health challenges among infants of 0-6 months in Nembe LGA.

**Table 1: Effect of complementary feeding on infants.**

| Parameter  | Yes | No  | %  |
|--|-----|-----|----|
| I fed my baby with breast milk and pap/Abiola milk within 0 – 6 months | 91  | 261 | 26 |
| My baby loose watery stools that occur more frequent than usual        | 73  | 279 | 21 |
| My baby poo worm at the period of 0 – 6 months                         | 33  | 319 | 9  |

**Source:** Field work 2026

Table 1 indicates that 26 percent (26%) of the mothers fed their babies with breast milk and pap/sachet milk, 21 percent (21%) experience watery stools among the babies while 9 percent (9%) says their baby poo worm at the period of 6 months. Qualitative information also corroborates the data collected through the questionnaire method, what ten (10) respondents said could be summarized below:

“My baby loose watery stools that occur more frequent than usual”

While other twenty (20) respondents’ comments can also be summarized below:

“My baby poo worm at the period of 0 – 6 months”.

From the above proposition, it can be said that complementary feeding pattern should be discouraged among mothers.

### Test of Hypotheses

**Statistics:** Inferential statistics used is Pearson Product Moment Correlation (PPMC)

**Formula:**

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

**Hypothesis one:** There is no significant relationship between complementary feeding and infants' health of 0-6 months in Nembe Local Government Area.

**Table 1:** Correlation analysis of relationship between complementary feeding and infants' health.

**Contingency Table**

|  |                     | I fed my baby breast milk with pap/ Abiola milk | my baby poo worm at 0 - 6 month |
|--|---------------------|---|---------------------------------|
| I fed my baby breast milk with pap/ Abiola milk              | Pearson Correlation | 1   | .545**                          |
|  | Sig. (2-tailed)     |   | .000                            |
|  | N                   | 352   | 352                             |
| my baby poo worm at 0 - 6 month                              | Pearson Correlation | .545**  | 1                               |
|  | Sig. (2-tailed)     | .000  |                                 |
|  | N                   | 352   | 352                             |
| **. Correlation is significant at the 0.01 level (2-tailed). |                     |   |                                 |

Result  $r = -.545^{**}$

$p = 0.01$

As can be observed in table 1, data analysis indicates a significant relationship between Complementary feeding and infant of 0.6 months' health in Nembe Local Government Area ( $r = -.545^{**}$ ; 0.01) at 0.5 level of significance. . Since  $p$  – value was at 0.01 lower than 0.05 level of

Significance the null hypothesis was rejected, leading to the alternative hypothesis being accepted and the correlation coefficient of  $.545^{**}$  implies that there is a moderately strong relationship between the two variables. By interpretation, the more lactating mothers engage in complementary breast feeding, the more the infant become susceptible to diarrhea.

**Research Question ii.** What is the relationship between bottle feeding and health challenges among infants of 0-6 months in Nembe Local Government Area?

**Table 2: Effect of bottle feeding on infant**

| Parameter  | Yes | No  | % |
|--|-----|-----|---|
| I feed my baby with formula milk since birth and did not breastfeed. | 18  | 334 | 5 |
| My baby is overweight  | 15  | 337 | 4 |

**Source:** Field work 2026

Table 2: indicates that 5 percent (5%) of the respondents responded that they feed their babies with formula milk without breastfeeding while 4 percent (4%) said their babies are overweight. The qualitative information in corroboration with the data collected through questionnaire method shows a good number of mothers who said YES that their babies are overweight.

**Hypothesis two:** There is no significant relationship between bottle feeding and health challenges among infants of 0-6 months in Nembe Local Government Area.

**Table 2:** Correlation Analysis of relationship between Bottle feeding and Infants' Health

**Contingency Table**

|                                       |                     | I feed my baby with formula milk only | My baby is over weight |
|---------------------------------------|---------------------|---------------------------------------|------------------------|
| I feed my baby with formula milk only | Pearson Correlation | 1                                     | .909**                 |
|                                       | Sig. (2-tailed)     |                                       | .000                   |
|                                       | N                   | 352                                   | 352                    |
| My baby is over weight                | Pearson Correlation | .909**                                | 1                      |
|                                       | Sig. (2-tailed)     | .000                                  |                        |
|                                       | N                   | 352                                   | 352                    |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Result  $r = -.909^{**}$   $p = 0.01$

As can be observed in table 2, data analysis indicates a significant relationship between bottle feeding and infant of 0 - 6 months' health in Nembe Local Government Area ( $r = -.909^{**}$ ; 0.01) at 0.5 level of significance. Since  $p$  – value was at 0.01 lower than 0.05 level of

Significance the null hypothesis was rejected, leading to the alternative hypothesis being accepted and the correlation coefficient of  $.909^{**}$  implies that there is a strong to perfect relationship between the two variables. By interpretation, the more lactating mothers engage in bottle feeding, the more the infant become obese.

**Research Question 3** What is the association between exclusive breast feeding and health challenges among infants of 0-6 months in Nembe Local Government Area?

**Respondents' response on the association between exclusive breastfeeding and infant health**

| Parameter   | Yes | No  | %  |
|---|-----|-----|----|
| I feed my baby with breast milk only                              | 59  | 293 | 17 |
| My baby loose watery stools that occur more frequently than usual | 295 | 57  | 84 |
| My baby poo worm at the period of 0 – 6 months                    | 295 | 57  | 84 |
| My baby had nausea, vomit, headache, fatigue and muscle cramps    | 293 | 59  | 83 |

**Source:** Field work 2026

In table 3 it is shown that 17% percent (17%) respondents say they feed their babies with breast milk only, 84 percent (84%) says their baby experience loose watery stools, another 84 percent (84%) says their baby poo worm at the period of 0-6 months, and 83 percent (83%) say their baby experience weakness of the body. Qualitative information from the 17 respondents' comments state that their baby are healthy and that they have never experienced any health challenges while practicing exclusive breast feeding.

**Hypothesis three:** There is no significant relationship between exclusive breast feeding and health challenges among infants of 0-6 months in Nembe Local Government Area.

Pearson’s correlation matrix showing relationship between exclusive breastfeeding and infant health.

**Contingency Table**

|  |                     | I feed my baby with breast milk only | infant health challenges |
|--|---------------------|--------------------------------------|--------------------------|
| I feed my baby with breast milk only                         | Pearson Correlation | 1                                    | -1.000**                 |
|  | Sig. (2-tailed)     |                                      | .000                     |
|  | N                   | 352                                  | 352                      |
| infant health challenges                                     | Pearson Correlation | -1.000**                             | 1                        |
|  | Sig. (2-tailed)     | .000                                 |                          |
|  | N                   | 352                                  | 352                      |
| **. Correlation is significant at the 0.01 level (2-tailed). |                     |                                      |                          |

Result  $r = - 1.00$

$p = 0.01$

As can be observed in table 3, data analysis indicates a significant relationship between exclusive breast feeding and infant of 0.6 months’ health in Nembe Local Government Area ( $r = - 1.00$ ; 0.01) at 0.5 level of significance. Since  $p$  – value was at 0.01 lower than 0.05 level of

Significance the null hypothesis was rejected, leading to the alternative hypothesis being accepted and the correlation coefficient of 1.00 implies that there is a strong to perfect relationship between the two variables. By interpretation, the more lactating mothers engage in exclusive breast feeding, the more the infant become free from illness or dying from diarrhea or pneumonia.

## Discussion of Findings

The first hypothesis: There is no significant relationship between complementary feeding and infants' health of 0-6 months in Nembe LGA.

The result of the test confirms that there is a significant relationship between complementary feeding and infants' health. Answers to question one was used for this test. The result of the Pearson's correlation matrix, verified the hypothesis

The findings revealed that the more breastfeeding mothers engage in complementary breast feeding, the more the infants' contract diarrhea and this affect the growth of the baby. This corroborates Tang et al., (2015) whose study says "infants are at high risk of repeated diarrhea and helminths infections from microbial contaminated foods during this period of complementary feeding especially in developing countries". The resultant effect of these infections usually, is poor growth and development.

The second hypothesis: There is no significant relationship between bottle feeding and infants' health of 0-6 months in Nembe LGA.

The result of the test confirms that there is a significant relationship between bottle feeding and infants' health. Answers to question two was used for this test. The result of the Pearson's correlation matrix, verified the hypothesis.

The findings showed that when these nursing mothers indulge in bottle feeding, the infants become obese. This is because human milk is easy to digest while the animal milk used in producing formula milk do not digest easily which is the reason why the baby tends to gain weight and grows bigger than the actual age of the baby.

Bottle-feeding may compromise baby's immune system. Studies show that breast milk develops and improves baby's immune system. While formula milk, on the other hand, does not contain vital and natural nutrients. Formula-fed babies also carry the risk of developing certain illnesses like a chest infection, ear infection, urine infection or diarrhea. This corroborates the report of the Nutrition Initiatives (2017) that overweight among children under five years of age has been on the increase over time with 38.3 million children under five years of age are overweight" and also corroborates the WHO, 2002; Bachrach, Schwarz and Bachrach, (2003) reports that says "developing countries show that non breast fed infants are 6-10 times more likely to die from diarrhea and pneumonia in the first month of life.

The third hypothesis: There is no significant relationship between exclusive breast feeding and infants of 0-6 months' health in Nembe LGA.

The result of the test confirms that there is a significant relationship between exclusive breast feeding and infants' health. The result of the Pearson's correlation matrix, verified the hypothesis. The findings revealed that the more lactating mothers engage in exclusive breast feeding, the more the infant become free from illness or dying from diarrhea or pneumonia. This corroborates Khanal, Adhikari, Sauer and Zhao (2013) study that says "Infants who are exclusively breastfed have less chance of becoming ill or dying from diarrhea, pneumonia, meningitis, ear infections and other infections". It also corroborates Butte, Lopez-Alarcon and Garza, (2002); Lopez – Alarcon, Villalpando and Fajardo, (2002) study opines that "healthy infants exclusively breastfed do not need additional water for the first 6 months because breast milk itself is 88 % water which is enough to satisfy a baby's thirst, therefore giving water and other fluids displace breast milk and reduces the overall intake".

### Recommendations

1. Breast feeding mothers should avoid complementary feeding between the periods of 0 – 6 months because it exposes the infants to the risk of repeated diarrhea and helminthes which hinder cognitive development of the infants.
2. Bottle feeding be discouraged among lactating mothers because non breast fed infants are 6 – 10 times more likely to die from diarrhea and pneumonia in the first month of life as well as it encourages obesity to infants.
3. The golden hour is an hour after birth is an important hour lactating mothers must initiate breastfeeding to her baby and must go by exclusive breastfeeding to enhance infants healthy growth and development as well as efficient development of the brain and relieve the baby from diarrhoea, pneumonia and meningitis from the first six month and also untimely death.

### Reference

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