

**IMPROVING MOTHERS' PRACTICE OF CHILD SURVIVAL STRATEGIES  
THROUGH BEHAVIOUR CHANGE COMMUNICATION IN DELTA STATE,  
NIGERIA**

**BY**

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## ABSTRACT

Under-five mortality remains high in Nigeria and this could be attributed to low practice of Child Survival Strategies (CSS) by mothers. Behaviour Change Communication (BCC) strategies have been shown to favourably improve child survival practice. The health talk normally used for antenatal education does not seem to be effective. This study was conducted to assess the effect of Behaviour Change Communication on mothers' practice of CSS in Delta State, Nigeria.

This quasi-experimental study involved a three-stage simple random sampling technique to select one rural Local Government Area (LGA) from three Senatorial Districts, two communities (one experimental; one control) per LGA and one primary health centre for each community where 40 mother-child pairs were recruited. A pretested, semi-structured, interviewer-administered questionnaire was used to collect information on socio-demographic, Knowledge, Attitude and Practice (KAP) of CSS. Using a 45-point scale, knowledge was categorized into poor (0-14), fair (15-30) and good (31+); 27-point scale was used to categorize attitude into negative (0-7) and positive (8-27) and 15-point scale was used to categorize practice into poor (0-4), fair (5-10) and good (11-15). WHO/UNICEF Guide for Community Resource Persons and Social Cognitive Theory were adapted to develop interventions to address identified gaps from KAP of CSS. One BCC intervention each: drama, audiovisual or talks were implemented weekly for three months per experimental community. Anthropometric data of children was assessed using standard procedure and analysed using WHO Anthro software. Data were analysed using descriptive statistics and association between BCC strategies and KAP of CSS was determined using chi-square and paired t-test at  $\alpha 0.05$ .

Mothers' age was  $27.8 \pm 5.6$  years, 22.1% had tertiary education and 38.3% earned  $< \text{N}10,000$  monthly. Children's age ranged from 0-15 months, 64.7% were 0-6 months and 49.2% were females. Knowledge increased from 15.8% to 21.6%, positive attitude from 65.5% to 76.1% and good CSS practice from 43.5% to 51.8% in experimental group after intervention. Mean knowledge score was significantly higher in the experimental group ( $25.7 \pm 8.7$ ) compared to the control group ( $11.9 \pm 7.9$ ); ( $t = -12.370$ ,  $p < 0.05$ ). The mean practice score was also significantly ( $t = -3.690$ ,  $p < 0.05$ ) higher in the experimental group compared to the control group. Respondents who received drama, talk and audiovisual treatment had 26.7%, 23.1% and 14.3% ( $X^2 = 4.53$ ;  $p = 0.33$ ) good knowledge respectively. Respondents in audiovisual strategy group had higher positive attitude (90.6%) compared to those in talks (82.7%) and drama (55.6) which was significantly different ( $X^2 = 6.29$ ;  $p < 0.05$ ). There was no significant difference ( $F = 1.103$ ,  $\text{sig} = 0.335$ ) in practice based on BCC method. The proportion of mothers who intended to breastfeed for 24 months was significantly different ( $X^2 = 16.28$ ;  $p < 0.05$ ) at endline. All mothers took their children for growth monitoring post-intervention compared to baseline (72.3%) in experimental group; ( $X^2 = 48.99$ ;  $p < 0.05$ ).

Use of social cognitive theory in designing the behaviour change communication intervention improved knowledge, attitude and practice of child survival strategies among mothers in Delta State. The strategy should be adopted in the design and implementation of appropriate child survival education programs targeting mothers in Nigeria.

**Keywords:** Child survival strategies, Behaviour change communication, Under-five children, Social Cognitive Theory

**Word count:** 491

## **DEDICATION**

This Thesis is dedicated to God Almighty, the Only Wise God; for His favour, help, provision, protection, grace and strength.

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## **CERTIFICATION**

I certify that this study was carried out by Ms. Oghenefego ISIKWENU in the Department of Human Nutrition, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria.

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## LIST OF ACRONYMS

ANOVA	Analysis of Variance
BCC	Behaviour Change Communication
CORPs	Community Resource Persons
CSS	Child Survival Strategy
KAP	Knowledge, Attitude and Practice
IYCN	Infant and Young Child Nutrition
IYCF	Infant and Young Child Feeding
HIV	Human Immuno-deficiency Virus
AIDS	Acquired Immune Deficiency Syndrome
PHC	Primary Health Centre
LGA	Local Government Area
TBA	Traditional Birth Attendant
NDHS	National Demographic Health Survey
NNHS	National Nutrition and Health Survey
MDGs	Millennium Development Goals
IGME	Interagency Group for Child Mortality Estimation
GOBIFFF	Growth Monitoring, Oral rehydration, Breastfeeding, Immunization, Female education, Family planning and Food fortification
ENA	Essential Nutrition Actions
EBF	Exclusive Breastfeeding
ORT	Oral Rehydration Therapy
GMP	Growth Monitoring and Promotion
FP	Family Planning
KII	Key Informant Interview
FGD	Focus Group Discussion
SAM	Severe Acute Malnutrition

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0 BACKGROUND OF THE STUDY**

USAID (2009) reported that Child survival strategies are steps taken by individuals and communities for children aged 0-3 years to reduce risk, duration or severity of a health condition that adversely affects the survival of infants and children. This definition shows clearly that efforts aimed at improving child survival should be done in partnership with the community. The strategies are usually multi-sectoral and will need team work to achieve and ensure children live more healthy and fulling lives.

Behaviour Change Communication (BCC) is the process where communication strategies are developed to promote positive behaviour that are suitable in an environment and allows for sustained positive behaviour outcomes (UNFPA, 2002). Behaviour change communication is an appropriate tool for dealing with many community and group related problems. Behavioural change communication packages designed according to the felt need of the community has favourable impact on the knowledge and safe practice of mothers for neonatal care (Khan *et al.*, 2013). A wide variety of health promotion strategies use communication as either an educational or norm-formation strategy. Behaviour change communication activities are seen as a part of the crucial actions that will advance IYCN knowledge and practices and result in improved nutritional outcome in pre-school (Bhatt *et al.*, 2013).

A mother's knowledge, attitude and practice of child survival strategies have the tendency to affect the health and nutritional status of a child. Research findings abound on the positive outcomes when primary caregivers back their knowledge of child health and nutrition with corresponding action, by putting them to practice (Ogunba, 2006; Ajibuah, 2013)

Seemingly basic strategies and behaviour like introducing the neonate to breast milk within an hour of birth, feeding with colostrum, exclusive breastfeeding, appropriate complementary feeding, immunization and the like, have become complex due to the interplay of various levels of influence

on a mother's decision-making process. Social, cultural, traditional, family, religious and economic factors come to play in making the decision to practice these strategies.

Various studies (Sriram *et al.*, 2013; Danso, 2014; Bayissa *et al.*, 2015; Kengalagutti *et al.*, 2015; Sanusi *et al.*, 2016) have shown that high mother's knowledge on exclusive breastfeeding does not translate to actual practice of the same. This pattern holds true for other essential nutrition actions and child survival strategies; where knowledge is rated high, but practice is low. It is common knowledge that the first 1000 days of an infant's life is one of the most sensitive and vulnerable stages of life which necessitates proper understanding and suitable maternal care. The US Coalition for Child Survival's definition of Child Survival emphasizes the importance of the total buy-in of the family and community in achieving a child's health.

According to the World Health Organization, pneumonia (16%); preterm birth complications (16%); diarrhea (9%); intrapartum-related complications (11%); and malaria (5%) are the major causes of mortality among children under age five (WHO, 2015). It has also been documented that over 30% of under-five deaths globally, are attributable to undernutrition (UNICEF, 2020).

Hoddinot opined there is evidence showing that poor infant and young child nutrition (IYCN) practices result in poor pre-school nutrition outcomes (Hoddinott *et al.*, 2017). The proportion of deaths amongst under-five children in Sub-Saharan Africa and Southern Asia is large and increasing. UNICEF (2012) State of the World's Children report stated that over 90% of the countries with 100 deaths per 1,000 live births in 2011 were in Sub-Saharan Africa. While some countries and regions have recorded significant decline in child mortality over the years, the Sub-Saharan region, Nigeria inclusive, has not. According to NPC and ICF (2014), 29% of deaths under age 5 occur during the neonatal period, and 24% occur during the post-neonatal period.

According to NPC and ICF (2019), 37% of children under the age of 5 are stunted and 17% are severely stunted. Children in rural areas are more likely to be stunted (44.8%) than those in urban areas (26.8%) in Nigeria. Statistics from previous NPC and ICF (2008, 2010, and 2014) reports have shown that there is a higher burden of malnutrition and infant mortality in the northern part of Nigeria. This explains the focus of most donor funded programs and government interventions in that region. Taking a closer look at the NPC and ICF (2019) report; amongst the South-South States, Delta State was reported to have the second highest prevalence of under-5 stunting (23.7%) and underweight (13.0%) when compared with the other 5 States in the region. This is not a good report,



given the level of education, exposure and resources invested in maternal and child health programs in the State.

The 2015 National Nutrition Health Survey (NNHS) reported that the percentage of women who were treated for malaria during pregnancy in Delta State was 62.7%; which is low when compared to States such as Rivers and Cross River (72.4%) and only 40% of households in Delta State have at least one mosquito net (NNHS, 2015). The prevention of malaria during pregnancy is a key component that helps prevent low birth weight. The implication here is that more than half of infants could stand the risk of being born with low birth weight.

The nurturing of children is part of culture and is usually passed on from one generation to another. Most of these traditional practices emanate from experience, while others are superstitious. Some go as far as being life threatening and might have the ability to jeopardize the health of a child. It is well documented that behaviour change communication can increase mother's knowledge of infant and young child nutrition, practice and consequently health outcomes (Hoddinott *et al.*, 2018).

Nigeria is made up of different cultural, ethnic and religious entities, this level of diversity has led to huge competition for access to the country's resources; thus leading to a multidimensional mix of cultural practices that impact health (Bartlett *et al.*, 2003). Delta State is popularly known for her oil producing contribution to Nigeria's economy and is home to a large population of subsistent farmers; mainly involved in crop farming and water-related agro-ventures like fishing.

## **1.1 STATEMENT OF PROBLEM**

The health talk normally used in providing antenatal education at the community level is likely not effective in causing behaviour change and an improvement in child survival. Knowledge of child survival strategies (CSS) has been found to be above average in different studies, but the gap remains in putting this knowledge to practice among mothers (Sanusi and Gbadamosi, 2009; Oladoyinbo and Bolaji, 2015; Etokidem and Johnson, 2016). This is a point of concern for the global health community. There have been various programs, studies and interventions focused on child survival for decades in Nigeria and globally (Kana *et al.*, 2015). Most of these programs and research studies provided evidence for the possibilities of achieving very high child survival rates and have recommended various strategies (e.g. GOBIFFF, ENA, etc.). This should logically connote

significant improvements in child survival; yet this is not the case especially for Nigeria (NPC and ICF 2019). This draws attention to the fact that current strategies used in providing education to expectant and nursing mothers at the Primary Health Care Centres (PHCC) have not yielded much impact in improving the nutritional health of children (Anya *et al.*, 2008). This could be connected to the assumption that most outreaches are aimed at information dissemination and not behaviour change.

The high infant mortality and morbidity rates are not only issues of the lack of information or effective strategies to achieve reduction in child mortality, or the skilled man power to provide adequate services; it is also a problem of information dissemination, knowledge, attitudes and behaviour by the direct beneficiaries of these interventions. The level of under-5 mortality is 132 deaths per 1,000 live births in Nigeria. Only 29% of children in Nigeria were exclusively breastfed for 6 months. 37% of children in Nigeria are considered to be stunted (NPC and ICF 2019).

There seem to be high concentration of knowledge on child survival strategies at the academic, policy, federal and state administrative levels. However, this does not appear to be the case at the Primary Health Care (PHC) levels and consequently at the mothers' level (individuals). Health workers at the PHC implement strategies as separate programs; which may be due to different funding agencies and promoters, thus, the health workers might not be delivering interventions as a whole package. This is likely to also affect the way these strategies are communicated to the beneficiaries by the health workers.

The quality of information provided at the PHC level might be distorted or incomplete owing to the methods through which these programs are transferred from Federal or State levels to the PHC level. The real issue for child health in Nigeria might just be the provision of correct and complete information to the individuals concerned (pregnant women and mothers) in the right dose to spur behaviour change and/or formation, with the full support of other socio-cultural factors and structures.

## **1.2 JUSTIFICATION OF THE STUDY**

Although the prevalence of stunting might not be alarming for Delta State, the occurrence of wasting; which is an indication of concurrent malnutrition in the population is a cause for concern. This shows that mothers and primary caregivers need to be empowered with correct information on infant nutrition and other child survival strategies to enable them practice and sustain adequate health behaviour for under-five children. Assessing the level of knowledge to practice among mothers arises in a bid to finding sustainable solutions to infant malnutrition and mortality in Delta State and the information could be extended to Nigeria as a whole.

There is the need to communicate more effectively at the Primary Health Centres (PHC) and community levels to achieve increased mothers' knowledge, positive attitudes and practice of child nutrition and health care strategies. Health workers also need to have information and understanding of the strategies as a whole and not as separate interventions. To arrive at best practice in effectively communicating these child survival strategies (CSS) and behaviour change in favour of child survival, it needs to be evidence-based.

There is also the need to develop a tool that would provide information on the most effective communication channels which will enhance mothers' practices of child survival strategies, putting into consideration local realities and diversities. There is need to convert the knowledge available at the academic, policy and health management levels to meaningfully robust programs that yield results at the community levels.

This study sought to improve mothers' practice of child survival strategies through behaviour change communication in Delta State, Nigeria.

## **1.3 RESEARCH QUESTIONS**

1. What are the support systems available in the family and community for the practice of child survival strategies in Delta state of Nigeria?
2. What is the level of knowledge of the health workers disseminating child survival messages?
3. What is the Knowledge, Attitude and Practice of child survival strategies amongst mothers with children 0-24months in Delta state of Nigeria?

4. How effective are BCC interventions (community drama, health talks and audio-visual aid materials) in improving the knowledge, attitude and practice of child survival strategies amongst mothers with children 0-24months in Delta state of Nigeria?

## **1.4 HYPOTHESES**

### **Hypothesis One**

Null Hypothesis: There is no significant difference between the knowledge and attitude level of the health workers

### **Hypothesis Two**

There is no significant difference in endline knowledge between control and intervention

### **Hypothesis Three**

There is no significant difference in endline Attitude between control and intervention

### **Hypothesis Four**

There is no significant difference in endline Practice between control and intervention

### **Hypothesis Five**

There is no significant difference in BCC strategies effect on KAP between control and intervention

### **Hypothesis Six**

There is no significant difference in BCC strategies effect on KAP between control and intervention

### **Hypothesis Seven**

There is no significant difference in BCC strategies effect on KAP between control and intervention

## **1.5 Objective of the study**

The general objective of this study was to improve mothers' practice of child survival strategies through behaviour change communication in Delta State, Nigeria.

## **1.6 Specific Objectives:**

The specific objectives of this study are to:

- determine available community and family support systems for the practice of child survival strategies in Delta State of Nigeria.
- evaluate the knowledge and attitude of health workers regarding child survival strategies
- assess the Knowledge, Attitude and Practice (KAP) of child survival strategies among mothers with children 0-24 months in Delta State of Nigeria

- explore the effectiveness of BCC interventions (community drama, health talks and audiovisual aids) in improving the knowledge, attitude and practice of child survival strategies among mothers with children 0-24 months in Delta State of Nigeria

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Global Burden of Malnutrition

Globally, 60% of the 10.9million under-five deaths annually are directly or indirectly caused by malnutrition. Over 70% of under-five mortality, which are usually related to inappropriate feeding practices, happens in the first year of life. Malnutrition is a key driver of under-five mortality and to address child survival, the nutritional status of infants must be considered. No more than one-third of infants globally are breastfed exclusively for four months; the practice of complementary feeding is often inadequate and unsafe and begins too early or too late (Tushar *et al.*, 2013).

Malnourished children who survive under-five mortality suffer other health challenges throughout their lives, which can result in impaired development (UNICEF, 2010). The prediction by Mwangome *et al.* (2010) was right, given that the Millennium Development Goal (MDG) to reduce malnutrition by 50% in 2015 was not achieved by most African States. The focus for the Sustainable Development Goals and other programs targeting reduction in under-five deaths should be on ensuring practice of child survival strategies by primary caregivers.

Various studies have proven that malnutrition hinders children from achieving their full potentials and limits their full participation socially and economically (Tette, *et al.*, 2014; Kudazi, 2014 & WHO, 2018). USA in 1950 had better child survival rates than those in Sub-Saharan Africa in year 2000 (Ahmad *et al.*, 2000). This has far reaching consequences not only for the present generation of children but for future generations. To break the cycle of poverty and underdevelopment, Africa's children must be positioned to fully participate socially and economically when they become adults and this begins at birth.

As at 2011, 57 countries had been able to reduce their under-five mortality rate below 10 per 1, 000 live birth and they were mostly high-income countries in Europe and North America. To achieve this at a global scale will require innovation, adoption of new ways of thinking and doing things. The most falls in under-five deaths have happened in four regions: Latin America and the Caribbean,

East Asia and the Pacific; Central and Eastern Europe and the Commonwealth of Independent States; and the Middle East and North Africa. Sub-Saharan Africa and Southern Asia have continued to record an increase in under-five mortality (UNICEF, 2012).

A UNICEF (2013) report showed that India, Pakistan, China, Nigeria, and Democratic Republic of Congo accounted for over 40% of under-five deaths in 25 countries globally. This means that the other 60% is spread across over a hundred countries, this data is quite alarming and government agencies in the above listed countries must treat this as a matter of urgency.

According to the 2017 UN Interagency Group for Child Mortality Estimation (IGME) report, overall substantial advancement was made to achieving MDG 4. The rate of under-five mortality globally has reduced from nearly 12million in 1990 to 6.9million in 2011. While that translates into 14, 000 fewer children dying every day in 2011 than in 1990, it still means that 19,000 children under-five died every day in 2011. While we analyze the global data, it is important for individual countries to know how many of these 19,000 lives were contributed by them. Until we begin to localize data, countries might not feel the sense of urgency to work towards reducing the under-five mortality rates.

Until recently, children had to be treated at the health facility; this practice limited the impact and reach of health interventions. New evidence now encourages that children can be treated in their communities when they suffer severe acute malnutrition (WHO, 2007). The partners of *A Promise Renewed* committed to five critical modifications in planning and action. They decided to focus resources on countries and regions with the most child mortality, intensify efforts among high-burden populations, focus on high-impact solutions, create a supportive environment for child survival and sustain mutual accountability.

The indices used for measuring malnutrition are weight-for-height, height-for-age and weight-for-age. Height-for-age is a measure of growth in length. A child who is below minus two standard deviations (-2 SD) from the median of the WHO reference population is considered short for his/her age, or stunted, a condition that shows accumulative effect of chronic malnutrition. If a child is less than minus three standard deviations (-3 SD) from the reference median, then the child is said to be severely stunted. A child between -2 SD and -3 SD is measured to be moderately stunted.

Weight-for-height defines the recent nutritional status. A child who is less than minus two standard deviations (-2 SD) from the reference median is described as being too thin for his/her height, or wasted, a condition that reflects acute or recent nutritional deficit. As with stunting, wasting is considered severe if the child is minus three standard deviations (-3 SD) or more below the reference mean. Severe wasting is closely associated with mortality risk. Weight-for-age is a compound index of weight-for-height and height-for-age, and therefore does not differentiate between acute malnutrition (wasting) and chronic malnutrition (stunting). A child can be under-weight for his age because he is stunted, because he is wasted, or both. Weight-for-age is a good general sign of a population's nutritional health.

The risk of dying is four times higher for a severely stunted child and nine times higher for a severely wasted child (Black *et al.*, 2008). This connotes that the high prevalence of stunting among under-five children in Nigeria makes them 9 times more vulnerable to die. Approximately 101 million children under-five years globally were underweight in 2011; with 52 million were moderately or severely wasted globally (UNICEF, 2012). The World Health Assembly set a new goal to decrease low birth weight by 30% between 2010 and 2025. In 2011, above 20 million infants, approximately 15% globally were born with low birth weight (UNICEF 2013).

Logistic regression analysis shows that children had three times more likelihood to survive if their mothers made decisions concerning her health and household purchases. In a study it was seen that children born into marital relationships have higher risk of survival, and this might be linked to the health seeking decision making process (Kabagenyi and Nnakinga, 2006). It has been estimated that the lives of 1.5 million children under-five can be saved annually with improved exclusive breastfeeding practice, timely and appropriate complementary feeding and breastfeeding for up to two years (Jones *et al.*, 2003).

Pregnant and lactating mothers need to be educated on the importance of their health and wellbeing and that of their children. They need to understand the implications of severe acute malnutrition and its short and long-term effects. An effective nutrition behaviour change communication strategy is an important tool in this regard.



## **2.1 Infant Malnutrition in Nigeria**

As at 2018, Nigeria was documented to have one of the highest (32%) burdens of stunting in the world among under-five children. It was estimated that two million children in Nigeria suffer from severe acute malnutrition (SAM), of which two out of every ten has access to treatment (NNHS, 2018). This is suspected to be responsible for over 100,000 deaths per year.

Although malnutrition is preventable it still contributed to more than 50% of deaths of the 5 million children born in Nigeria (Onyezili, 2005). This calls for urgent attention and concentration in finding lasting solutions to malnutrition. The prevalence of childhood malnutrition is alarmingly high in Nigeria. The Primary Health Care system holds the key to addressing this issue at the grassroots.

The World Bank reports that poor access to quality health and sanitation services, poor maternal and child care, lack of education and family food insecurity are some of the underlying causes of malnutrition (World Bank, 2002). This still emphasizes the importance of good primary health care delivery for improving the chances of child survival.

The data from the NPC and ICF (2014) Report showed that a third of under-five children were stunted, while 21% were severely stunted. The occurrence of stunting increased with age from 16% of children under-six months to 46% at 24-35 months; this further reduced to 37% among 48-59 month old children. This report also showed that children in rural areas were more likely to be stunted than those in the city. The prevalence of stunting was highest in Kebbi State (61%); with the South-South zone at 18% and North-West at 55%. Children whose mothers were not educated were three times more susceptible to stunting than their counterparts with educated mothers. Wasting was found to peak at 9-11 months of age, with 18% of the children found to be wasted (NPC and ICF 2014).

NPC and ICF (2014) report showed 29% of children were underweight and that this proportion skyrocketed at age 6-8 months. Results showed that the nutritional health of children declined after six months, which is the period of introducing complementary food. When primary caregivers do not have adequate knowledge or the resources to provide appropriate complementary food, this tells on the health of the child.

Nigeria has always been at the forefront of adopting and implementing various global initiatives targeted at ensuring the health and wellbeing of children and their mothers; some which include

Baby-Friendly Hospital Initiative, Roll Back Malaria, Safe Motherhood initiative and others. Regardless of these initiatives the progress made has been very slow, majorly due to poor planning, non-sustainability of donor-funded projects, lack of decentralized management capacity and limited inter-sector approaches. Nigeria has also drafted various policy documents to ensure child survival such as the National Health Policy, Maternal and Child Health Policy, National Policy on Population and Sustainable Development, National Nutrition Policy and a host of others.

In the aforementioned policies and programs, it was noticed that elements of nutrition are included, not as key strategies or areas of focus. The reduction in infant mortality will not come from the number of programs a government is involved in, but in the quality, relevance and effectiveness in achieving the results forecasted. There has to be an increased concentration in translating knowledge to practice, with less emphasis on meeting deadlines which result in the implementation of policies and programs haphazardly.

## **2.2 Determinants of Child Survival**

To achieve the Sustainable Development Goals there needs to be a formulation of health initiatives by identifying determinants of child mortality. Determinants of childhood mortality have been observed from a number of analytical contexts. Mosley and Chen (1984) and Schultz (1984) made the distinction between variables considered to be socioeconomic (i.e. cultural, social, economic, community and regional factors) and biomedical factors (i.e. breastfeeding patterns, hygiene, sanitary measures and nutrition). Their approach incorporated biological and social factors and provided a single variable for the measurement of morbidity and mortality. The framework is based on the premise that all social and economic determinants of child mortality necessarily operate through a common set of biological mechanisms, or proximate determinants, to exert an impact on mortality. The proximate determinants are grouped into five categories:

- Maternal factors: age; parity; birth interval
- Environmental contaminants: air; food/water/fingers; skin/soil/inanimate objects; insect vectors
- Nutrient deficiency: calories; protein; micronutrients (vitamins and minerals)
- Injury: accidental; intentional
- Personal illness control: personal preventive measures; medical treatment

Socioeconomic determinants:

- Individual-level variables: individual productivity (fathers, mothers); traditions/norms/attitudes
  - Household-level variables: income/wealth
  - Community-level variables: ecological setting; political economy; health system
- (Schultz, 1979; Palloni, 1981)

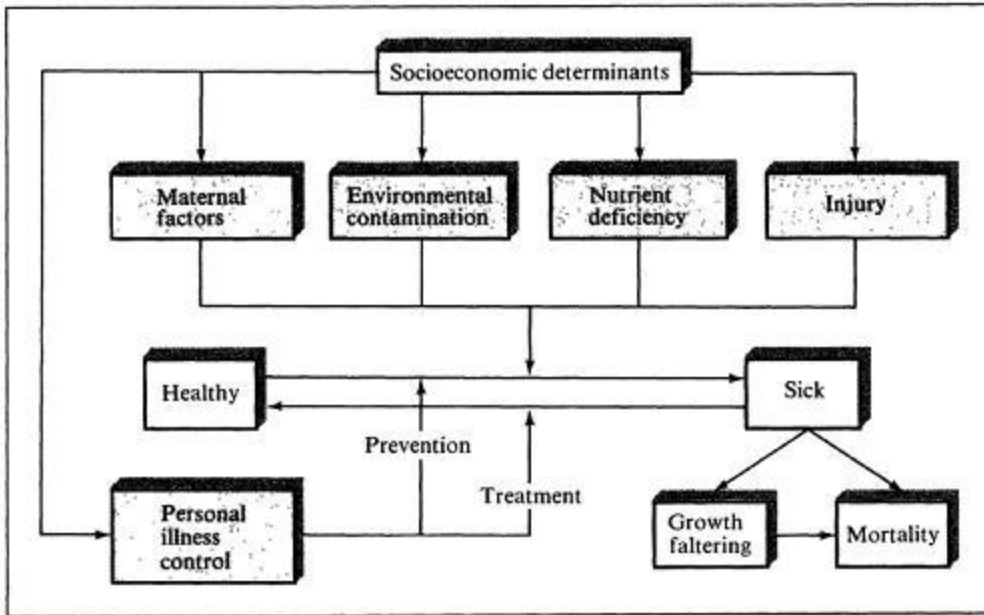


Figure 2.1: Determinants of Child Survival by Mosley and Chen (1984)

A study by Adepoju *et al.* (2012) showed that the most significant factors that influenced child deaths in rural areas were type of birth, child ever breastfed, sex of child, age at first birth and education of mother. A study by Ugwueje (2012) aimed at examining mother's health-seeking behaviour revealed that the education of mothers had great effect on her health-seeking behaviour which included pre and postnatal clinic attendance, place of delivery, rate of response to child's ill-health and immunization. A shorter breastfeeding period has been shown to increase the risk of infant mortality. These findings draw attention to the strong links between maternal and infant health.

The NPC (2000) documented that the number of caregivers who used ORT consistently increased with their level of education. It also reported that the number of children not immunized reduced from 60% among uneducated mothers to 24% amongst mothers who had primary school education. This link between level of education of mother and child survival could be interpreted beyond formal education and seen from the perspective of the potential of a mother to understand the importance of child survival strategies better due to her educational level. This means that if the illiterate mother has same information communicated more effectively to suit her background, she might as well practice the child survival strategies to save her infant's life.

The World Health Organization in 2003 highlighted the fact that a male infant is more likely to die during the first year of life due to biological factors. Strong in a report opined that female children are ten times more susceptible to die when they lose their mothers during child birth (Strong, 1992). Obstructed labour, hypertension, unsafe abortion, infection and hemorrhage are the most common causes of maternal mortality and morbidity. Poor maternal nutrition during pregnancy, malaria, HIV and AIDS amongst other factors are the underlying causes of low-birth weight. (Njokanna and Olarewaju, 1995; Akpala, 1993). This reemphasizes the importance of maternal health in addressing child survival issues; both must be dealt with corroboratively.

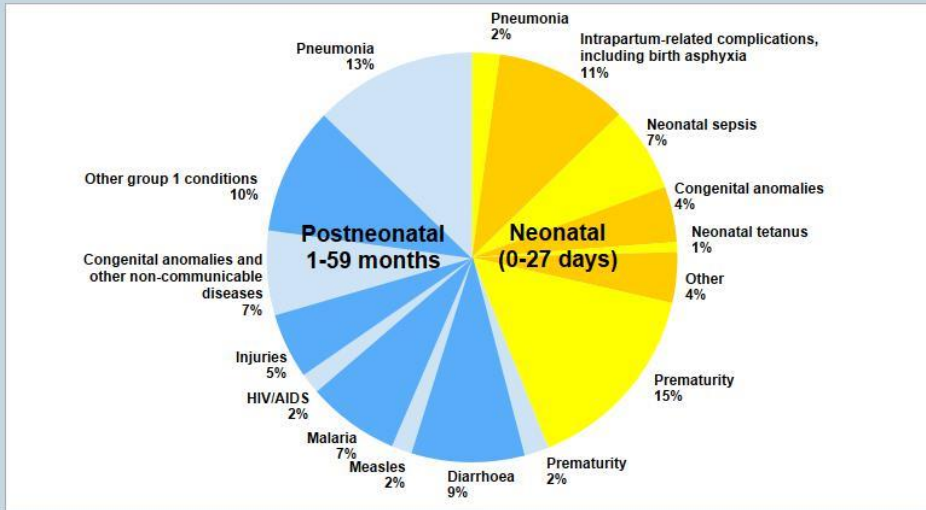
In Nigeria women begin giving birth early, with over 50% becoming mothers at 20years of age (Ayotunde *et al.*, 2009). Teenage pregnancy is more rampant in rural areas and this negatively affects the socio-economic and socio-cultural indices. Young mothers are more likely to encounter complications during delivery which results in increased mortality and morbidity for themselves and their children. With most Nigerians not able to access family planning and a low contraceptive prevalence rate, more women are having unplanned children at shorter birth intervals (NPC and ICF,

2019). There is a socio-cultural resistance to family planning in Nigeria due to misinformation, poverty and other factors; this is asides poor allocations for family planning and reproductive health activities in the budget.

“A number of studies indeed point to a U-shaped effect of birth order; with the probability of infant mortality declining after the first child and increasing again for children of birth order four and higher” (Titaley *et al.*, 2008, Uddin and Hossain, 2008). Ronsmans (1996) in a study carried out in rural Senegal showed the relationship between birth spacing and mortality. The results showed that children who were not spaced as recommended had a four-time higher chance of death in their second year of life.

Child mortality can be avoided in Nigeria if the factors that threaten the health of children are addressed, such as access to clean water, hygienic living conditions, malaria prevention and proper housing (Feyisetan and Adedokun, 1992; Ogunjuyigbe, 2004). The focus of child health and child survival interventions in Nigeria should include addressing the hygienic conditions in which children are born and raised.

Sub-Saharan Africa, certain countries in Eastern Mediterranean region and South Asia are one of the hardest hits for malnutrition, infectious diseases and poor environmental conditions, which take a toll on children under five (Fewtrell, *et al.*, 2007). In a paper Smith *et al.* (1999) assessed the global environmental burden of disease and reported that almost half of the total burden of disease which was attributed to environmental risks falls on children under the age of five, although they are only 12% of the population. Malnutrition and poor environmental conditions seem to result in a double burden on infants and children.



Source: CHERG-WHO methods and data sources for child causes of death 2000-2013 (Global Health Estimates Technical Paper WHO/HIS/HSI/GHE/2014.6.2)

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Figure 2.2: Causes of Death among Children under 5 years

## **2.3 Strategies for Child Survival**

The understanding of factors responsible for child mortality is important public health knowledge. According to the Child Health Epidemiology Reference Group, 64% of the 6.9million under-five deaths in 2011 were caused by diarrhea, malaria, HIV, measles, meningitis and pneumonia (Walker *et al.*, 2011). Most of the under-five deaths are from preterm birth complications and intrapartum-related complications, which make up a third of these cases. The major causes of child mortality are infectious diseases, injuries, child marriage and early child bearing; mother's education, water, sanitation and hygiene and maternal mortality.

Various strategies have been implemented to promote child survival globally. Strategies like Growth monitoring, Oral rehydration, Breastfeeding, Immunization, Female education, Family planning and Food fortification (GOBIFFF) by UNICEF, micronutrient supplementation, appropriate complementary feeding, suitable nutritional care of sick children and effective management of malnourished children called the Essential Nutrition Actions (ENA). Others include the Integrated Management of Childhood Illnesses an intervention that combined delivery of essential child health programs to improve the development of children and addresses the major causes of child mortality.

If the known effective interventions are implemented on a global scale over 6 million children will be saved every year (Darmstadt *et al.*, 2005). Women empowerment has to involve acquiring the ability for a mother to access information and make informed decision concerning the health her child. Once the primary caregiver is empowered, the survival of the child will be enhanced. UNICEF (2001) reported that due to the high coverage of the immunization program there was an increase in child survival.

### **2.3.1 Maternal Nutrition**

The nutritional status of a woman before and after she gets pregnant influences the health outcome of her child. To ensure a child develops properly, there must be adequate intake of nutrients, supplementation when needed and disease prevention. It also entails avoidance of other stress factors like environmental pollution, psychological stress and narcotic substances(Walker *et al.*, 2011). In most cases low birth weight is as a result of maternal malnutrition. Globally, more than 30% of non-pregnant and almost 50% of pregnant women suffers from anemia, much of which is caused by iron deficiency (WHO, 2001). Cesar *et al.* (2016) suggested that the way to achieve improved nutritional



status and development of children will be to focus on the essential nutrition actions with emphasis on exclusive breastfeeding for 6 months, proper nutrition for pregnant and lactating women and adequate complementary feeding.

Miller (2011) in a study of 291 mothers in Marsabit district in Kenya concluded that indigenous and western knowledge of health and treatment in the Ariaal communities were very similar. The study showed that even if the women were illiterate and had better understanding of traditional treatment methods, it was important for mothers to have some health knowledge which was effective in protecting their child from illness. It has become obvious that the relationship between the mother's nutritional health and that of her child is important to the survival of the child, and this should be communicated in clear terms to every mother before, during and after pregnancy.

The nutrient needs of a pregnant or nursing mother increases significantly due to the demand on her body (Marangoni *et al.*, 2016). An additional 285kcal/day of energy is needed by a pregnant woman, while a nursing mother needs an additional 500kcal/day. It is very important that a woman has suitable supply of vitamin A, iodine, folate and iron for the sake of her health and that of her baby. Due to food scarcity and poverty, food distribution in a household might affect the quality and quantity of food available to an expectant and nursing mother (FAO, 2011).

### **2.3.2 Infant and Young Child Feeding (IYCF) Practices**

One fifth of deaths of under-five children can be prevented by making sure adequate breastfeeding and complementary feeding is adhered to by mothers (Jones *et al.*, 2003). Studies suggest that although it has been established that adequate nutritional health will increase child survival, very little attention is given to this in programming. For early initiation of breastfeeding Sub-Saharan Africa leads by 48%, although this is not the case when it comes to practice of exclusive breastfeeding. Although it has been reported that the proportion of children been breastfed reduces with age, 96% of them are still being breastfed at 6-8 months and 92% at 9-11 months in Nigeria (NPC and ICF, 2014).

### **2.3.2a: Exclusive Breastfeeding (EBF)**

The World Health Organization (2001) has recommended that all infants be breastfed exclusively for the first 6 months of their lives to ensure proper growth and development. It is possible to breastfeed exclusively from birth, provided there are no medical conditions that can harm the child; therefore, it is important that a child takes only breastmilk for the first 6 months after birth.

In 2011 only 39% of infants were breastfed exclusively for six months. While 76% were still breastfeeding at one year, only 58% continued till two years. Sub-Saharan African had the lowest coverage of exclusive breastfeeding for six months due to low proportions in West and Central Africa (UNICEF, 2012). Most of the countries featured in the UNICEF Nutrition Report (2013) saw progress in exclusive breastfeeding coverage. Although some countries like Nigeria, Chad and Cameroon still have low rates. The National Demographic and Health Survey (NPC and ICF, 2019) reported that only 29% of children in Nigeria were exclusively breastfed for 6 months.

Although 97.1% of children 0-23 months assessed have been breastfed, other components of young child feeding indicators and breastfeeding are still sub-optimal and poor in Nigeria. A large proportion (80%) of newborns do not get introduced to breastmilk and colostrum less than an hour after birth; only 27% of 0-5 months old infants are breastfed exclusively, and so complementary food is introduced earlier than six months (NNHS, 2018). This predisposes these children to unhygienic feeding conditions and vulnerability to illnesses.

Epidemiological studies show that place of delivery, place of residence, maternal educational attainment, and mother's age at birth of the child; have been linked with timing of breastfeeding initiation (Awogbenja, 2010). There is need to make deliberate effort in training and retraining of health workers who provide services to mothers, to ensure improved service delivery across board. In a study in India reported that the risk of acute lower respiratory infection is significantly linked to vitamin D deficiency and none adherence to exclusive breastfeeding for the first four months of life (Wayse *et al.*, 2004).

Black *et al.* (2008) reported that "children who are exclusively breastfed are eleven times less likely to die of diarrhea and fifteen times less likely to die of pneumonia. Al-Jassir *et al.* (2006) in a survey involving 21,507 infants and children under the age of five in Riyadh city reported the average birth

weight was 3027g and 8.6% of the children had low birth weights. This study found that in spite of food subsidy by the government of Saudi Arabia and high per capita income, the occurrence of malnutrition is fairly high.

### **2.3.2b: Appropriate Complementary Feeding**

To meet an infant's increasing nutritional needs, they should continue breastfeeding until two years and adequate complementary feeding. Complementary feeding is the introduction of semi-solid and solid foods in addition to breastmilk after 6 months of age. This is to ensure the child gets the required nutrients for optimum growth and development. Complementary feeding usually spans from 6 to 23 months of age (WHO, 2008).

The NDHS (2013) report showed that mothers introduced complementary foods earlier than recommended. The percentage of children who are fed using a bottle with a nipple keeps rising among 6-8-month-old. The problem of poor quality of complementary food has been under-emphasized in nutrition programming for quite some time (Dewey, 2005).

The following are guidelines for complementary feeding:

1. Practice exclusive breastfeeding for the first 6 months of life before introducing complementary foods while breastfeeding continues.
2. Breastmilk should be given on-demand to children until two years and beyond.
3. Practice responsive feeding, applying the principles of psychosocial care.
4. Ensure good hygienic practices and adequate food handling
5. At 6 months semi-solid foods should be introduced in small quantities, which can be increased as the child grows older.
6. As the child gets older, begin to add variety and increase food consistency to suit their adapting abilities.
7. As the child gets older, make complementary food the major meal.
8. Infant should be fed a variety of foods so as to ensure adequate supply of all nutrients.

9. When an infant is ill is not a time to reduce feeding, but to do the opposite by increasing fluid intake and favourite foods.

For optimal growth and development of a child a critical window of opportunity is the first 1,000 days from pregnancy (Cesar *et al.*, 2016). Malnutrition can be prevented through adequate complementary feeding.

### **2.3.3: Oral Rehydration Therapy (ORT)**

It has been ascertained that oral rehydration is a simple treatment approach and is well-known (Mahalanabis *et al.*, 1973). Children with diarrhea have been saved by using oral rehydration salts especially the low osmolarity formula. WHO (2012) in a report supported the use of oral rehydration salts for the treatment of diarrhea in children and that this has reduced under-five mortality. As effective as this treatment has been over the years very few mothers have adequate knowledge on how to prepare ORT at home and the urgency with which they should administer it before they take their children to the clinic. Some health workers have leveraged on this ignorance to insist on the mother purchasing the Oral Rehydration Salts packet; this then possess a challenge for poor families who already have extremely scarce resources.

The NDHS (2013) report showed that more than a third of mothers administered Oral rehydration therapy when their child had diarrhea. Although it was discovered that children aged six months and those in the North-Eastern part of the country had fewer treatment with ORT. The NDHS (2018) report shows an improvement (50%) in children administered ORT when ill with diarrhea. This is quite different from the NNHS (2018) report where only one quarter of the 15% of children under-five years who reported to have had diarrhea in the two weeks before a survey were treated with ORS (26%) or Zinc (24%).

### **2.3.4 Micronutrient Supplementation**

In poor households, the major source of food is plant based, this scarcity in animal food sources can result in deficiencies of vitamin A, iron and zinc. In 2009, the WHO estimated that one hundred and ninety million children suffered vitamin A deficiency and above 30% of children in South-East Asia and Africa were anemic. Malnutrition compromises the immunity of children, which then increase their susceptibility to morbidity and mortality (WHO, 2007).

It has been suggested that micronutrient supplementation is an effective intervention that can address mineral and vitamin deficiency among children and other vulnerable groups (Mora, 2002). It has been recommended that in places where a particular vitamin or mineral is deficient especially among children six to fifty-nine months, supplementation should be implemented as a public health intervention to avoid child deaths. Vitamin A supplement has been traced to increase gut integrity and so helps in diarrhea cases, but the pathway in which it functions is not fully understood (Villamor and Fawzi, 2005).

Since vitamin A is a fat-soluble vitamin it is recommended that infants are given a high dose every 6 months until age five. Although infants have a good store of iron at birth, their requirement increases daily due to rapid growth. The quantity of iron in breastmilk is no more sufficient to meet the child's needs after 6 months, so if this supply is not met from adequate complementary food, it can lead to iron deficiency.

A child born with low weight has fewer iron stores and so is more at risk of suffering iron deficiency. When the child's diet does not provide the required iron needs, most of them become anemic before age one. As for zinc supplementation, WHO (2010) recommends that mothers should ensure their children get 20mg per day for ten to fourteen days. Zinc deficiency has been found to increase the risk of impaired immune function and gastrointestinal infection (Lukacik *et al.* 2008). Zinc deficiency can be caused by inadequate absorption due to its binding to dietary fibre in plant-based foods and due to poverty, given that animal food sources are rich in zinc content (Haider and Bhutta, 2009). Zinc reduces diarrhea mortality by 23% when used as treatment (Fischer and Black, 2010) and is associated with a reduction of 14–15% in pneumonia or diarrhea incidences (Niessen *et al.* 2009). Baqui *et al.* (2002) reported that zinc supplementation reduces the occurrence of diarrheal episodes and its severity and duration.

Another mineral that has high deficiency prevalence is iodine. Therefore WHO and UNICEF (2007) recommended its supplementation for households who have less than 20 percent access to iodized salt. It is also suggested that countries with less than ninety percent access should ensure food fortification with iodine as a matter of national urgency. The daily requirement of iodine for children six to twenty-three months is set at 90 micrograms, while children less than six months are expected to rely on breastmilk for their supply; although, this will be dependent on the child being exclusively breastfed.

### **2.3.5 Growth Monitoring and Promotion**

An emotionally secure and properly nourished child will grow as expected; it is an important indication of a child's health. To ensure a child is growing normally, WHO has provided a growth chart to enable caregivers track the child's growth. Using anthropometric data to periodically track the growth of a child using a standard is referred to as growth monitoring. Growth monitoring is quite different from nutritional status assessment; it is more consistent and frequent. Therefore, when growth monitoring activities are combined with counselling and awareness to ensure a child grows optimally it is known as growth monitoring promotion.

Growth monitoring and growth monitoring promotion are both critical elements of a larger approach to avoiding malnutrition in communities. In a very insightful statement, Griffiths and Rosso in (2007) suggested that it was more cost-effective to prevent malnutrition than to manage it. This entails that every child born with normal weight maintains that range, while those with low birth weight are aggressively attended to so they reach the normal growth status.

### **2.3.6 Immunization/Vaccination**

To truly admit that a child has been completely vaccinated, that child has to have received BCG, all three doses of DPT, a minimum of three doses of polio vaccine and measles vaccine during the first year of life. This is an important fact that needs to be addressed at the primary health level where mothers do not pay attention to the type of vaccines their children are receiving and so cannot track if the complete doses have been administered. Although the clinic card carries such information, it is mostly the health workers who use the information on them; an illiterate mother might not bother looking at the information provided in their health cards. Caregivers need to also be sensitized to know the infection each vaccine protects their child from, so they develop a higher sense of appreciation and commitment to the process.

Immunization is an intervention that reduces the number of individuals who are likely to be infected by a disease and even transmit to others. This also builds a protective shield for those who have not been immunized as long as immunized individuals out-number those who are not, in a given population (USAID, 2003).

### **2.3.7 Family Planning**

Although family planning has been recognized as one of the greatest achievements of public health in the last 100 years, access to contraceptives is very low (Singh *et al.*, 2009). When couples willingly decide to limit the number or space their children, it is known as family planning. To achieve this some couples depend on contraceptive methods, either traditional or modern. Modern methods include female sterilization, male sterilization, the pill, intra-uterine device (IUD), injectable, implants, male condom, female condom, standard day's method (SDM), and lactational amenorrhoea method (LAM). Methods such as rhythm (periodic abstinence) and withdrawal are grouped as traditional methods.

Family planning can lead to healthier families and communities when men and women feel empowered to avoid unintended pregnancies decide when to have children and prevent abortion. Furthermore, some contraceptive prevents the transmission of infections (Guttmacher Institute, 2010). The advantages of family planning also span to the economic and social well-being of families, because the ability to choose your family size helps in making more concrete plans for the future.

Due to the low use of modern contraceptive in Sub-Saharan Africa and South Asia, 75 million women still have unplanned pregnancies and about 40% of them engage in unsafe abortions (Singh *et al.*, 2009). In such cases not only is the life of the child at risk that of the mother is also on the line. These regions are known to be sticklers to traditional practices and so might need more awareness and targeted interventions to increase contraceptive coverage. In Nigeria, contraceptive use is very low, with only 15 percent usage. The most common methods are male condoms, injectable and pills (NDHS, 2013). This can definitely be traced to why population growth is high in the country which has recently been tagged the poverty capital of the world.

Different studies have proven an increase in family planning adoption when couples understand the association between maternal and child health. WHO (2005) suggested that behavior change communication initiatives can be used to help families decide to wait at least two years before trying to get pregnant again. The benefits are not only limited to family size and health, it affects the socioeconomic and emotional well-being of the household.

### **2.3.8 Promotion of good sanitation practices and access to clean drinking water (The Environment)**

The prevalence of stunting among children in rural households is higher than those in urban households globally. Poor hygienic conditions lead to frequent episodes of diarrhea and possibly intestinal infection with worms which then result in undernutrition among children (Humphrey, 2009). Key interventions that focus on access to clean water, good sanitation practices and housing can reduce undernutrition (Guerrant *et al.*, 2008).

Integrating community-based programs with relevant interventions like water and sanitation can make tremendous impact in ensuring children live healthy lives (UNICEF, 2013). Although the influence of political and cultural factors on food availability, water and sanitation have been widely discussed, there is little evidence as to how if improved they will have a positive effect on the nutritional health of children.

Mesike and Mojekwu (2012) reported that the following factors were associated with lower death rates in families; they are proper waste disposal, good sanitation, access to immunization, proper roofing material and good source of cooking fuel. A study by Raheem *et al.* (2009) at Ilorin, Nigeria among 300 lactating mothers showed that proper housing was a critical factor of child health. Aside from the lack of clean drinking water, low awareness of the health hazard associated with unhygienic practices complicates the problem. In a study by Ordinioha (2011) in 22 riverine communities found that only four of the seventeen water supply facilities were working; most of which tested positive for *Escherichia coli*.

In a comparative study of 8 countries in sub-Saharan Africa including Nigeria among women aged 15-49years, Fayehun (2010) stated that households in poorly hygienic situations are at a disadvantage of higher mortality of under-five children compared with others. Generally, the notable sources of pollution in the oil producing parts of Nigeria are seismic surveys, canalization, oil spillage, poor waste management and gas flaring. 10% of the sample respondents had suffered from lung related problems (Bayode *et al.*, 2011). This has been a burden carried by the people who live in this part of Nigeria. Oil spillage does not just affect the biological and chemical structure of the soil it decreases food production and the nutritive value of foods produced on such soil; this also impacts negatively on fishery resources (Wokocha *et al.*, 2011). It was summarized that pollution as a result of oil spillage affects communities negatively by causing food insecurity and childhood



malnutrition (Ordinioha and Sawyer, 2008). There have been calls for the clean up of the environment and that oil producing companies should be responsible for this exercise. The former Minister of Environment in Nigeria, Amina Mohammad, launched the Ogoni clean up some years ago, but very little has been achieved to cause significant impact in restoring the health of the land and airspace in the region. Naiho *et al.* (2010) in a study involving 900 subjects in Delta State reported that results suggest crude oil exploration may have a negative impact on the socioeconomic and nutritional status of host communities.

Households derive economic and health benefits when they have access to water supply and sanitation facility. Diarrhea, intestinal helminths and a range of other diseases are linked to inadequate access to safe drinking water and improper disposal of human excreta. According to United Nations MDGs Report (2013), showed that in 2011, 64% of the world's population had access to good sanitation facilities and 89% had clean drinking water sources. Sub-Saharan Africa remains far behind even with such global achievements; with only 30% and 63% of her population with access to sanitation facility and safe drinking water respectively. Nigeria's goal was to increase access to improved drinking water to 77% and to improved sanitation to 69.5% by the end of 2015.

### **2.3.9 Promotion of healthy practices and effective utilization of health services (Through Community-based Interventions)**

Community-based programs have been an engine room for the implementation of various initiatives to promote maternal health and fetal development. It is important that antenatal care appointments are leveraged to ensure optimal nutrition and other interventions like de-worming. It has been documented that over two-thirds of expectant women benefit from a minimum of one antenatal visit globally, yet the quality of care received is different (UNICEF, 2012). Communication programs that utilize community-based education approaches can foster proper behavior that will impact positively on nutrition. In 2007, the United Nation endorsed community-based management as being a successful approach for the treatment of acute malnutrition (WHO, WFP, UNICEF, 2007).

Ethiopia was successful in bringing down under-five deaths from 139 deaths per 1000 live births to 77 within ten years; during this period from an estimated 57% to 44%. An important National Nutrition Programme component was the community-based programme which concentrated on improving the nutritional status of children under the age two. In Nepal, between year 2000 and

2011 under-five deaths reduced from 83 deaths per 1000 live births to 48. They also experienced a reduction in stunting from 57 percent to 41 percent within same period (UNICEF, 2011). Nepal used the community-based program approach taking advantage of female health volunteers in communities across the country.

An intervention in Iran suggests that when caregivers get appropriate education it plays a huge role in ensuring children receive protein-rich foods, live in more hygienic conditions, which then impact positively on their growth even in poor households (Mousa *et al.*, 2004). Baig-Ansari *et al.* (2006) reported that in poor households it will be better for food subsidies to precede or accompany educational efforts aimed at behaviour change. The problem of food insecurity has to be addressed before any educational intervention will be welcomed or effective.

Ugwu (2012) reported that neonatal deaths from decade to decade in Nigeria has shown no significant improvement but worsening situation. The reasons range from lack of man power to poor utilization of the health facilities. In a longitudinal study in Cebu, Philippines, findings suggested improving the educational status of mothers only does not guarantee improved child health; other measures have to be put in place to ensure mothers have access to resources at the community level that will enable them play their roles more effectively (Dargent-Molina *et al.*, 1994).

## **2.4 Challenges in Child Survival Programs**

Child survival programs have been implemented for over five decades, yet there is still a lot of ground to cover to achieve optimum development for every child. One of the challenges of child survival programs is its dependence on various initiatives related indirectly, therefore, does not seem to be a coordinated effort to achieve the set goals (Claeson *et al.*, 2003). This resulted in programs delivering many messages at a given time with very low intensity, because the goal was achieving large coverage as against motivating behaviour change.

A reported stated that health workers were not getting adequate training that will ensure high coverage in the future because in most countries less than 10 percent who provided child care services had been trained (Bryce *et al.*, 2003). A quantitative survey carried out in Riyadh, Saudi Arabia among pregnant women showed that majority of the women had poor nutrition knowledge score (Mansour and Hassan, 2009).

Majority of child mortality and morbidity in Nigeria is linked to malaria, vaccine preventable diseases and diarrhea. We need to pay attention to the implementation of policies that will guarantee an improvement in the quality of life of children in Nigeria. The national health policy in Nigeria aimed at ensuring every citizen had access to primary health care so they can live productive lives. The reality on ground is a far cry from what the objectives of this policy. An estimated one million children die annually due to preventable diseases. The country has poor indices when it comes to maternal and child health, universal immunization and other programmatic interventions.

The health system in Nigeria has suffered various setbacks from insufficient skilled workers, to dilapidating infrastructure, inadequate skill, poor funding and a host of others. This has resulted in a lack of decentralization of service provision causing an overlap in primary, secondary and tertiary care.

## **2.5 Behaviour Change Communication Theories**

Communication plays a dominant role in addressing obstacles and influencing demand for and embracing of preventive practices related to health. Behaviour change communication is important to achieve an increase in the practice of particular behaviours known to enhance health and growth. The methods used to change behaviour are vital for determining how successful an intervention will be. One of the best cost effective ways of targeting the matters of Maternal and Child Health is through Behaviour Change Communication (BCC) (UNICEF, 2009). It is the entire series of procedures and methods used to inspire positive health outcomes by making deliberate and strategic usage of communication to reinforce health seeking behaviours through health literacy. This can be either concentrated at the individual or community level. It can also be targeted at diverse levels of communities such as local, regional, and national levels, via wide ranges of mechanisms conveyed by different styles of channels and forms (Riboli-Sasco *et al.*, 2015). BCC can be used for health education, community mobilization and different public outreach programs (Riboli-Sasco *et al.*, 2015).

Globally, there has been a paradigm shift from random awareness-raising information, education, and communication (IEC) activities to tactical, evidence-based behaviour change communication (BCC) strategies. This change comes as a result of the awareness that individual behaviour is influenced by socio-cultural and gender norms, therefore, the need to rally communities in support of

recommended behaviours is vital along with incorporating advocacy to influence policy and structural issues, resulting in increasingly holistic approaches to health communication.

The significance of understanding the theoretical foundations of behavioural interventions has been emphasized in previous research signifying theoretical bases for merging behaviour change techniques within interventions to allow synergistic results and enhance their efficacy (Dombrowski *et al.*, 2012; Michie *et al.*, 2009; Taylor *et al.*, 2011; Webb *et al.*, 2010).

Briscoe and Aboud (2012) opined that for an intervention to be successful a combination of three or even four categories of techniques, engaging participants at the behavioural, social, sensory, and cognitive levels must be used. Doing this poses its own challenges when it comes to deciding what theory or model to use. Michie *et al.* (2005) stated that choosing an applicable theory can be a herculean task for intervention designers, especially due to the large number of theories available with many having the same or intersecting constructs, to choose from.

There are hundreds of theories and models related to behaviour change communication, an overview of some of these theories will be discussed in this text.

### **2.5.1 Theory of Planned Behaviour**

According to Darnton (2008), the Theory of Planned Behaviour (TPB) is a familiar model that has been generally used in the past. This model emphasizes that the key factors influencing behavioural intention are: attitudes towards the behavior, subjective norms and perceived behavioural control. Intention is seen as resulting directly in behaviour. The Theory of Planned Behaviour is an ‘adjusted expectancy value model’. However an ‘expectancy value’ model is founded solely on attitude, the TPB also identifies the influence of the ‘subjective norm’. It also comprises ‘perceived behavioural control’, well-defined in this case as the ease or difficulty of performing the behaviour in question. For these reasons, the model is understood as providing a more truthful forecast of behaviours than models based only on attitude. Nonetheless, the Theory of Planned Behaviour remains an intention-based model.

### **2.5.2 Health Belief Model**

The Health Belief Model focuses on two aspects of individuals’ depictions of health and health behaviour: threat perception and behavioural evaluation. Threat perception was interpreted as two

key beliefs: perceived susceptibility to illness or health problems, and anticipated severity of the consequences of illnesses. The association between health beliefs and behaviours was theorized principally in terms of Lewin's (1951) idea of 'valence'. Certain beliefs were thought to make behaviours more or less attractive. This resulted in an expectancy-value model of belief-behaviour relationships in which events thought to be more or less likely were positively or negatively assessed by individuals.

Initial research established that these health beliefs were actually associated with variances in health-related behaviour patterns (referred to below as 'health behaviours' or 'health behaviour patterns'), therefore could be used to distinguish between those who did and did not embark on such behaviours. The model was originally applied to precautionary behaviours but later successfully extended to recognize the associates of health service usage and adherence to medical recommendation (Becker *et al.* 1977). Rosenstock (1974) ascribed the first health belief model (HBM) research to Hochbaum's (1958) studies of the acceptance of tuberculosis X-ray screening. Hochbaum found that perceived vulnerability to tuberculosis and the belief that people with the disease could be asymptomatic differentiated those who had and had not attended for chest X-rays. The Health Belief Model had the benefit of stipulating a discrete set of common-sense beliefs that seem to explain, or mediate, the effects of demographic variables on health behaviour patterns and are amenable to change through educational intervention.

### **2.5.3 Social Practice Theory**

Social practice theory (SPT) is ever more being applied to the exploration of human behaviour, principally in the context of energy use and consumption. Instead of a single theory or 'model', Social Practice Theory is somewhat an umbrella method under which various facets of theory are pursued. The essential insight of SPT is the acknowledgement that human 'practices' (ways of doing, 'routinized behaviour', habits) are themselves arrangements of various inter-connected 'elements', such as physical and mental activities, norms, meanings, technology use, knowledge, which form peoples actions or 'behaviour' as part of their everyday lives (Reckwitz 2002). The approach particularly emphasizes the material contexts (also 'socio-technical infrastructures') through which practices occur, drawing attention to their impact on behaviour.

### **2.5.4 Stages of Change Model**

Prochaska and Velicer (1997) developed the 'Stages of Change' model, in the late 1970s and early 1980s based on smokers' methods to giving up cigarettes. Subsequently, this model has been used for a wide range of mainly health-related behaviours, like weight loss, drug and alcohol problems. The fundamental idea is that behaviour change involves six stages, with people progressing from one to the other at their own pace. The six stages of change are:

1. Pre-contemplation: where a person has no intent of changing their behaviour in the nearest future (typically defined as the subsequent six months), perhaps because they have not yet recognized that there is a problem behaviour that requires change.
2. Contemplation: The person in question recognizes that their behaviour needs to change, but they are not yet prepared to change.
3. Preparation: The person is preparing to change their behaviour by the next month and might by now conceived a plan of action.
4. Action: The person has changed their behaviour within the past six months.
5. Maintenance: The person is keenly upholding the changed behaviour although with the tendency to relapse.
6. Termination: The new behaviour is entrenched and the person is self-assured that they will not relapse.

In recent years, the model has been subjected to criticism, with arguments that there is no evidence that stage-matched interventions are any more effective than other interventions.

### **2.5.5 Diffusion of Innovation Theory**

This theory attempts to describe how new ideas and technology become popular in a society by 'diffusion'. It is defined as 'the process by which an innovation is communicated through certain channels over time among the members of a social system' Rogers (1995). Its basic principle is that people could be categories into the following, based on how likely they are to accept certain 'innovations':

1. Innovators: They are usually first to adopt. This group are more eager to take risks. They are also mostly young and belong to the upper social classes.
2. Early adopters: This group of individuals have a tendency to to be perceived as opinion leaders amongst the later adopter groups and, like innovators, tend to be younger and from upper social classes.
3. Early majority: This group adopt later than innovators and early adopters. Innovation ‘spreads’ through contact with early adopters. They are also perceived as opinion leaders by some.
4. Late majority: They are slower to adopt innovations and tend to be more skeptical than the earlier groups. They are less likely to demonstrate opinion leadership than groups 1, 2 and 3, and have fewer contact with earlier adopter groups.
5. Laggards: This group adopt innovations later than all the other groups. Laggards have a tendency to be older and are not typically opinion leaders. Their networks tend to be restricted to family and close friends.

### **2.5.6 Health Promotion Model**

The Health Promotion Model (HPM) was proposed by Pender in 1982 and was revised in 1987, 1996, and 2002. Pender’s background in nursing, human development, experimental psychology, and education led her to use a rounded nursing perspective, social psychology, and learning theory as foundations for the HPM (Sakraida, 2013). The Health Promotion Model shows that each individual is a biopsychosocial being that is partly shaped by the environment, but also seeks to make an environment in which inherent and learnt human potential can be fully expressed (Pender *et al.* 2011). The Health Promotion Model was initially designed to target individuals; however, the framework can be used to target families, groups, or communities. This model includes three primary areas that nurses can use to evaluate health promotion behaviours:

- 1) Personal characteristics and experiences;
- 2) Behaviours-specific cognition and affect; and
- 3) Behavioural outcome.

Additionally, the Health Promotion Model integrates elements of the change process, including a commitment to a plan of action and acknowledgement of competing demands. The final outcome is engagement in health promotion behaviours (Walker *et al.*, 1987).

### **2.5.7 Information-Motivation-Behavioural (IMB) Skills Model**

The Information Motivation Behavioural model, proposed by Fisher and Fisher (1992) to explain HIV-related behaviours, identifies three concepts; information, motivation, and behavioural skills needed to participate in a given health behaviour, as particular individual determinants of behaviour and behavioural change (Fisher & Fisher 1992; Norton, 2009). This model defines information as “an initial prerequisite for enacting a health behaviour” (Misovich *et al.*, 2003). This comprises not only behaviour-related information but also myths/heuristics that allow involuntary or cognitively effortless behaviour-related decision-making (Fisher *et al.* 2003; Norton, 2009). Motivation is composed of two features: personal motivation, which consist of beliefs about the intervention result and attitudes toward a particular health behaviour (Fisher *et al.*, 2003; Osborn, 2006), and social motivation, which comprises the seeming social support or social norm for engaging in a particular behaviour (Fisher *et al.*2003). Behavioural skills, the third factor in the IMB model, are skills essential for carrying out a particular health behaviour. To enable behavioural change, behavioural skills in the Information, Motivation and Behavioural model accentuate the improvement of an individual's impartial skills and increasing perceived self-efficacy (Fisher *et al.* 2003). IMB skills as well as obvious relationships among these concepts are considered generalizable determinants of health behaviours. Therefore, the IMB model has been used as a theoretical foundation for behavioural intervention studies across a variety of health behaviours (Carey *et al.*, 1997; Fisher *et al.*, 2009; Fisher *et al.*, 2006).

### **2.5.8 Integrated Theory of Health Behaviour Change**

The Integrated Theory of Health Behaviour Change proposes that health behaviour change can be improved by nurturing knowledge and beliefs, growing self-regulation skills and capabilities, and improving social facilitation. Engagement in self-management behaviours is seen as the proximal outcome influencing the enduring distal result of enhanced health status. Person-centred interventions are focused to increasing knowledge and beliefs, self-regulation skills and abilities, and



social facilitation (Polly, 2009). Using a theoretical framework improves clinical nurse specialist practice by concentrating assessments, directing the use of best-practice interventions, and improving patient results.

### **2.5.9 Protection Motivation Theory**

The latest iteration of the Protection Motivation Theory (PMT) model was designed by Ronald Rogers in 1983 as a way to better comprehend how and why individuals respond to possible threats to their health and safety. Protection Motivation Theory proposes that both individual and environmental factors can offer either encouragement or discouragement for engaging in protective behaviours and that the effects of such factors are reconciled by individual cognitive processes. These cognitive processes are proposed to differentiate from the presumed direct relationship of emotional fear on protective responses. To date, this theory has been mostly applied to explain protective behaviours connected to the healthcare field such as wearing sunscreen to avoid skin cancer and has received significant empirical backing (Floyd *et al.*, 2000; Milne, *et al.*, 2000).

### **2.5.10 Social Cognitive Theory**

The social cognitive theory also known as the social learning theory was propounded by Albert Bandura proving that learning can occur through observing media role models. This theory has been used in developing behaviour change communication programs aimed at health promotion at individual, community and national levels. Social cognitive theory is important to health communication because it addresses cognitive and emotional parts of human behaviour which helps in dealing with behaviour change. It also provides a foundation for intervention strategies (Bandura, 1998).

One of the principles of this theory is the dependence of behavioral change on environment, people and behaviour. It is mostly concerned with behavioral effects. It would suggest that whatever is depicted in media will result in either an increase or decrease in such behaviour if the model is rewarded or punished (Anaeto *et al.*, 2008).

Bandura (1998) stated that the socio-structural determinants of health are addressed by the Social cognitive theory as well as the personal determinants. “A comprehensive approach to health promotion requires changing the practices of social systems that have widespread detrimental effects on health rather than solely changing the habits of individuals”.

The entertainment-education theory was propounded by Fischer and Melnik in 1979. Singhal and Rogers (1999) stated that the process of designing and implementing media campaigns aimed at educating and entertaining an audience to increase their knowledge of an issue which might influence positive attitude and change behaviour is entertainment-education.

Entertainment-Education strategy can help create conducive environment for change at community and system levels by influencing awareness of the audience, attitude and then behaviour toward the desired end. This research implemented behaviour change communication using the entertainment-education strategy to motivate healthier nutritional behaviours among pregnant and lactating women in communities. Songs, drama/plays, and dance were used to achieve change in behaviours that will improve infant/child health.

For over 30years entertainment-education has served as a strategy for health behaviour change. Entertainment-education engages the emotions to influence change in attitude and behaviour by using drama, music and other communication formats (Johns Hopkins Bloomberg School of Public Health, 2008). This strategy leverages on the huge interest of audiences in media and entertainment to educate them on how to live healthier, happier and safer lives (Piotrow *et al.*, 1997)

## **2.6 Behaviour Change Communication in Child Health Programming**

Behaviour Change Communication (BCC) is defined as an evidence-based process that focuses on knowledge, attitude and practice of certain behaviours by identifying, segmenting and analysing an audience. Behaviour change communication aims to achieve practice through well-defined strategies (UNICEFROSA, 2005). This involves various steps from research to formulate hypothesis, to segmentation of the audience, setting behavioural objectives, piloting, monitoring and evaluation.

The fourth prerequisite suggested to translate ‘knowledge to action for effective child survival’ interventions by the Bellagio study group on child survival, is awareness and a commitment to action. The revolution experienced in the 1980s and 1990s was a global child survival movement

which mobilized all stakeholders from community leaders to political leaders, sports men and women, music stars, teachers and parents (UNICEF, 2001).

In a poor household, the decision to wash their hands with clean water or not to do so is one that will be made based on knowledge (Jalan and Ravallion, 2001). This is because clean water is still not available to a large population especially in rural areas. Households either have to pay for clean water or get a free source for a limited time, so whatever is fetched is rationed to last as long as possible. At this point, handwashing is not top priority for such families.

Knowledge is also important in the decision to take advantage of the clinic facility and eat nutritious meals (Schellenberg *et al.*, 2003:561). Poor families have limited resources and would rather go for quantity than quality in their search for satisfaction. In India, a third of mothers did not know the importance of immunization or where their child could be vaccinated (Claeson *et al.*, 2003). There has been some improvement in mother's practice of hand washing, diarrhea prevention and proper nutrition, although the gap in achieving global adherence is very wide. Such demographics do not need just another awareness campaign on the importance of child survival strategies, the goal should be behaviour change.

To improve feeding of children six to twenty-four months, behaviour change communication targeting mothers, family members, decision-makers and quality counselling is important (Zaman *et al.*, 2008; Wuehler *et al.*, 2011). This has been shown to be an effective strategy in different health promotion campaigns targeting this demography. The result of a project to promote the use of insecticide treated nets in Tanzania through social marketing was an increase in infants who slept under a mosquito treated net by 40% in 3 years. This was also linked to a 27% decline in mortality among these children (Schellenberg, *et al.*, 2001).

The Nepal case study reports that the Radio Communication Project took a behaviour change approach to information, education and communication. The effective alignment of communication channels and method to influence behaviour change of providers and clients is credited as the turning point and catalyst for improved child survival in Nepal (USAID, 2004). The educational status of mothers and their exposure to mass media can make a huge difference in child mortality.

Though behaviour change communication is an important part of the child survival policy in Nigeria, the key drivers of these programs are donor funded resulting in very low focus on behaviour

change as a strategy for child survival. The professional capacity of Nigerian universities has not been taken advantage of in implementing these policies. The success recorded in immunization coverage many decades ago in Nigeria was due to provision of electricity generators, IEC materials, proper logistics and adequate funding; mostly donor funding. So when these donors were no more available, coverage rates declined. There needs to be a conscious effort to stop reliance on donor-sponsored child survival interventions or at least have a sustainability plan when donor funds stop coming.

The Rwandan national survey reports that almost two-thirds of infants 6 to 8 months received timely and adequate complementary food, while 85% were exclusively breastfed from 0-5 months. The Rwandan government focused on using behaviour change communication strategies to encourage appropriate nutrition practices among pregnant and nursing mothers. This was reflected in the decline of stunting prevalence from 52% in 2005 to 44% in 2010.

Projects that use different BCC approaches have shown increased positive behaviour results on the health of children (Naugle and Hornik, 2014). The key is to ensure an effective BCC design backed by a theory or combination of theories most suitable for the goals of the project. A campaign in Kenya that used media, community outreach and public relations approaches saw an increase in intrauterine device use by 43% (The ACQUIRE Project, 2006).

In India, community health workers delivered a BCC intervention package aimed at increasing use of health facility for delivery. The results were positive as more than double the number of mothers who were Muslim delivered their babies at appropriate institutions (Khan *et al.*, 2013).

According to Favin and Griffiths (1999), focusing on behaviour change as against just providing information, thorough audience research, creativity and comprehensive strategy (not totally communication-based) are responsible for achieving improvement in nutrition practices.

The use of planned and strategic communication to strengthen health seeking behaviours to promote positive outcomes is described by Sreekumaran and Sarak (2016) as behaviour change communication.

## **2.7 Effective Communication mix for Child Survival Intervention**

Presently, one of the best acknowledged approaches for improving the impact of nutrition-sensitive interventions, including agriculture, and mostly effective in averting stunting, is Social and

Behaviour Change Communication (FAO, 2016; Lamstein *et al.*, 2014; Girard, *et al.*, 2012; Olney, *et al.*, 2015). In a report of Sustainable Nutrition for All in Uganda and Zambia project, SNV *et al.* (2017) stated that many caregivers knew that children at the age of six months should get foods including breast milk. Nonetheless fewer were practising this while a few others were giving solid foods before six months. This affirms that nutrition knowledge is seldom put into practice. They further reported that the interpersonal communication strategy, including household appointments and one-on-one dialogues between nutrition action groups and households was reported as positive in continuing the nutrition discussion and encouraging feasible steps. A one-size fits all method does not work and the Behaviour Change Communication strategy might warrant variation and contextualisation before implementation.

The most effective Behaviour Change Communication strategies include a mix of communication-focused and other actions, such as community mobilization, interpersonal communication, systems strengthening, social marketing, etc. In Egypt, the SMART method, which was in a government of religious illiberalism for most of the maternal and child health programme, shows an encouraging strategy to fill cracks in health education and counselling, as well as reinforce support for behaviour change through a community-based participatory approach (CBPA) (Brasington *et al.*, 2016). Outcomes from a qualitative study in rural Bangladesh indicated that 'Improving Maternal, Neonatal and Child Survival' (IMNCS) behaviour change communication interventions using interpersonal communication and community health workers are well recognized by the community (Rahman *et al.*, 2016).

In Burkina Faso, where the population is approximately 60 percent Muslim, a 2-year combined agriculture and nutrition programme directed at mothers of young children decreased underweight among mothers, and improved their empowerment using behaviour change communication executed by older female leaders or by health committee members (Olney *et al.*, 2016). In Bangladesh, the 'Alive & Thrive' (A&T) initiative enhanced Infant and Young Child Feeding through a nationwide mass media (MM) campaign, social mobilisation, and Interpersonal communication conveyed by health workers from BRAC. Stunting reduced equally in A&T-MM and individuals getting all three interventions (A&T-3) over this period (Menon *et al.*, 2015).

The body of works concentrating on the efficiency of BCC to increase women's dietary practices during pregnancy and lactation are few, but show that BCC methods can and do succeed in

enhancing application of the behaviours encouraged. A methodical evaluation by SPRING on use of Behaviour Change Communication in averting and plummeting stunting and anaemia shows that BCC methodologies can and do succeed in improving acceptance of those practices (USAID, 2014).

To ensure effective service delivery, it is important to take advantage of every contact with the target population especially when the system has limited capacity (Claeson *et al.*, 2003). This should be the focus and goal of any community program aimed at making positive impact in behaviour change communication.

An effective communication mix must include using different channels to reach families, through community and religious leaders, mass media, health workers and peer educators (WHO/UNICEF, 2007). An intervention study involving thirty-five mothers of infants aged 5-19 months in Delhi, India found that post-nutrition education results showed increased awareness about infant feeding among mothers. Progress was also noticed in variety, quantity and consistency of complementary feeding. Active feeding behaviour was adapted (6.6% pre-nutrition education vs. 66.6% post-nutrition education). Vani *et al.* (2003) opines that the duration of nutrition education does not matter provided it is repeated consistently to achieve awareness and improved infant feeding practices. This might not be entirely correct in every case, due to the fact that the educational status of a population might be lower and so they need more time to understand information provided before going on to adopt and practice new behaviours.

Reporting the Haiti experience, UNICEF and WFP (2012) stated that using community approach for nutrition education ensured the success in coverage. There was an increase in early breastfeeding initiation from 44% to 64% in six years. This can be replicated in any community and get even better results provided the peculiarities of each population are put into consideration in planning. A systematic review showed that integrated BCC activities like using different mass media, in addition to social marketing and effective interpersonal communication such as peer-to-peer or provider-client interactions, increased positive behavioural results on family planning (Mwaikambo *et al.*, 2011).

## **2.8 Achieving Nutrition Behaviour Change through Gateway Behaviour Concept**

Behaviour change is a concept that takes time and the willingness of the subject. It is one thing to educate, train and advocate for change in behaviour of mothers in a bid to achieve improvement in

child survival, it is another for the mothers to adopt these behaviour changes and practice them. The concept of gateway behaviour helps draw attention to specific habits and activities a mother needs to practice to achieve a healthy child.

According to Tucker and Reicks (2002), “a gateway behaviour is a health behaviour that when positively changed, would cause a positive change in another health behaviour (with the assumption that) interventions could focus on only one or two key behaviour and changes in other behaviour would ensue.” Although this may not be the case in all situations, an experimental trial would be a way to prove or dispute claims attributed to the gateway behaviour concept. Outcomes could strongly be affected by the cultural, environmental and other structural contexts that influence the individual’s behaviour.

It is therefore worthy of note, that in designing communication materials and program for behaviour change projects, emphasis could be placed on certain gateway behaviour. Rather than present too many behaviour change messages, it might be more effective to concentrate on messages on key behaviour that can influence change in other areas.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.0 Study design**

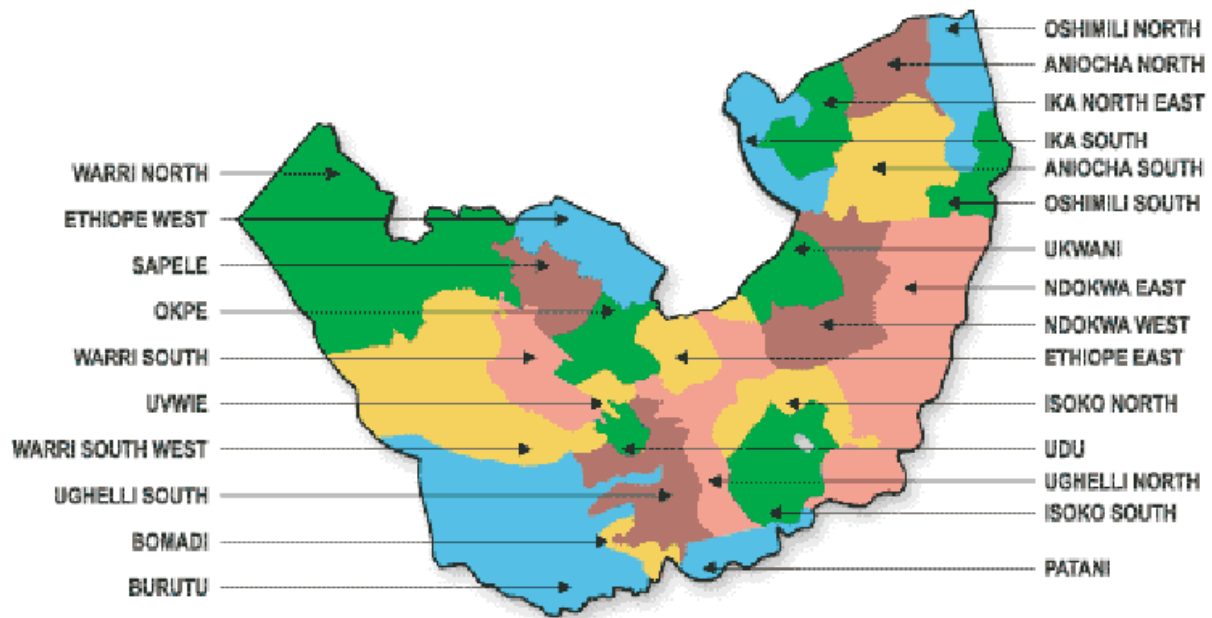
This was a community-based quasi-experimental and ethnographic study design, and was carried out in multiple intervention and multiple control communities (Banerjee *et al.*, 2013; Seif *et al.*, 2019 and Rosales *et al.*, 2019). This quasi-experimental design ensures variation in both control and experiment groups are measured and accounted for; which ensures more trustworthy results on effectiveness of the program. Mounting intervention programs in several sites constitutes a form of internal replication: If a consistent effect is observed in multiple settings, we have a firmer basis for predicting what would happen if similar programs were mounted in other communities (Koepsell, 1998).

The formative research utilized a Rapid Assessment Procedure (RAP) approach with participant observation, Key Informant Interviews (KII) and Focus Group Discussions (FGD) to collect data on community and family support and Knowledge, Attitude and Practice (KAP) of child survival strategies from Healthworkers and lactating mothers in the study communities. The purpose of the KII and FD was to gather information about personal experiences of the research topic from knowledgeable and informative persons – healthworkers and lactating mothers.

#### **3.0.1 Study Area**

This study was implemented in the three senatorial districts of Delta State, Nigeria. Delta State is one of the six States in the South-South region of Nigeria created from the former Bendel State on the 27<sup>th</sup> of August 1991. It is known for its contribution to the economy of Nigeria as one of the crude oil producing States in the country. Delta State is multi-ethnic made up of Urhobo, Isoko, Anioma, Ukwani, Ika, Itékiri and Ijaw tribes. There are twenty-five local government areas in Delta State.





**Figure 3.1: Map of Delta State showing Local Government Areas**

**3.0.2 Study Population:** The study involved mother-child pairs selected from each study community and all health workers in the selected six Primary Health Centres in study communities.

### **3.0.3 Sample size determination**

The sample size was determined using Eng (2003) as follows

$$N = 4 (\sigma)^2 (Z_{\text{crit}} + Z_{\text{pwr}})^2 \div D^2$$

N = Total sample size

$\sigma$  = the SD of each group; assumed to be equal for both groups. This SD is based on <-2SD Z-score for stunting in Delta State (NPC & ICF, 2014) = 14.9%

$Z_{\text{crit}}$  = 0.05 = 1.960 Significance level

$Z_{\text{pwr}}$  = 85% = 1.036 Desired statistical power

D = the minimum expected difference between the two means = 10%

$$N = 4(14.9)^2 (1.960 + 1.036)^2 \div (10)^2$$

$$N = (888.04) (8.976) \div 100$$

$$N = 79.7 = 80$$

An approximate sample size of 80 mother-child pair per LGA participated in the study; giving a total of 240 mother-child pair in three LGAs.

### **3.0.4 Inclusion criteria**

- Mothers with children 0-24months old in selected communities
- Mothers who have resided in the selected rural community for at least 5 years

### **3.0.5 Exclusion criteria**

- Mothers who did not give consent to participate
- Mothers who had not resided in the selected rural community for at least 5 years

### 3.0.6 Sampling strategy

A multistage simple random sampling technique was adopted in selecting the study area. There are three Senatorial Districts in Delta State, consisting of 25 Local Government Areas (LGA); 12 LGAs were classified as rural. One rural LGA was selected by balloting from each Senatorial District. The study was implemented in one rural Local Government Area (LGA) in each senatorial district of Delta State. The rural LGA shortlisted for the study were selected by balloting and were inhabited by people who were involved predominantly in small-scale agribusiness in Delta State. The selected LGAs by senatorial districts were as follows:

- Delta North Senatorial District - Ika North East Local Government Area
- Delta Central Senatorial District - Ethiope East Local Government Area
- Delta South Senatorial District - Isoko South Local Government Area

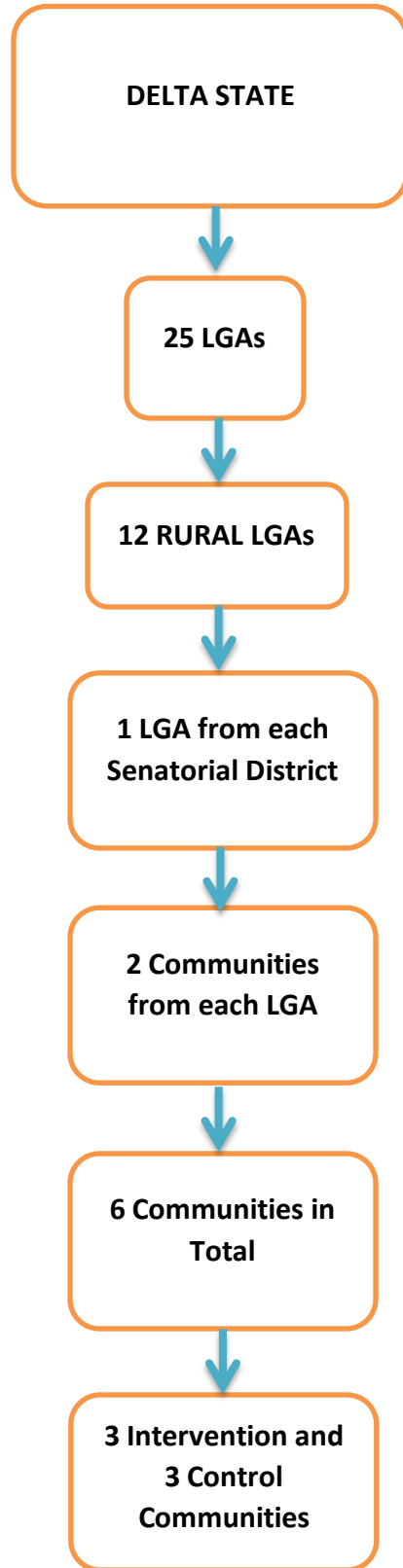
From each LGA selected, two (2) communities were randomly selected by balloting for this study. All communities were known as crop farming or fishing communities in Delta State. The selected communities were as follows:

- Ika North East LGA- Idumuesha and Ute-okpu communities
- Ethiope East LGA- Okpara Inland and Orhoakpo communities
- Isoko South LGA- Irri and Aviara communities

Out of the six communities selected, 3 communities each were selected by balloting to be either in the intervention or control groups. The 3 communities selected for intervention were Idumuesha, Aviara and Okpara Inland; while the control communities were Ute-Okpu, Irri and Orohakpo. Mothers who satisfied the inclusion criteria in each community were selected for baseline and post-intervention evaluation assessment. They were selected using their tag numbers which they were given (on first come, first serve basis) as they arrived at the Primary Health Centre. All mothers who were eligible were selected and were administered the questionnaire based on their consent at baseline and endline.

Administering the questionnaire on the clinic days was to take advantage of the possibility of reaching more respondents and to effectively manage resources available for this study. The availability of women in their homes in such communities is influenced by various factors; most especially market days and farming days. Also, working in partnership with the community health

workers at the Primary Health Centre was an opportunity to gain acceptance by rural dwellers and key stakeholders. Social learning theory holds that behavioural change is more readily achieved and maintained if norms and behaviours in the peer group support the change (Farquhar, 1978).



**Figure 3.2: Flow Chart Showing Sampling Strategy Step-by-Step**

### **3.1.0 Interview Process**

Mothers were interviewed using a pretested interviewer-administered, semi-structured questionnaire to collect information on mothers' Knowledge, Attitude and Practice (KAP) of child survival strategies (antenatal care, exclusive breastfeeding, complementary feeding, immunization, vitamin A supplementation, growth monitoring, etc.). Each selected mother-child pair was interviewed by a research assistant after she had concluded with her appointment with the healthworker during post-natal clinic. The interviewer read the consent form to each participant and got their consent with a signature before proceeding with the interview. Once consent had been gotten, the interviewer went on to ask the questions in the questionnaire and recorded the respondent's answers.

Key Informant Interviews (KII) was conducted with matrons or the most senior health officer on duty on the post-natal clinic day. The interview was scheduled to hold at the end of the activities of a typical antenatal clinic day. Once the matron or senior health officer was done with her duties for the day, an audio recorder was used to document the interview process. The KII question guide was used to conduct the interview.

Focus Group Discussions were conducted with groups of lactating women who were not involved in the study in each community. At the end of the immunization session, a group of 8 mothers who met the inclusion criteria and gave their consent were engaged in a focused group discussion using an FGD guide. Each participant was given an opportunity to speak during the discussion and this was recorded using an audio recorder. The FGDs and KII were conducted to provide more contexts on results from quantitative survey.

### **3.1.1 Data collection procedure**

There were two phases of data collection during this study; the first was the baseline survey and the second was a post-intervention evaluation survey.

### **3.1.2 Phase one**

The first phase of data collection entailed gathering baseline information using the interviewer-administered questionnaire. To achieve this all randomly selected community Primary Health Centres were visited to ascertain the post-natal and immunization clinic days. After the dates selected for the visits for all six communities had been confirmed, trained field assistants were

available to administer the questionnaire as planned while some respondents who met the criteria for inclusion were engaged in focus group discussions. A baseline assessment was done to determine mothers' gaps in knowledge, attitude and practice and other issues related to infant nutrition and health; which informed the design of the intervention. Baseline information were obtained on potential resources (such as access to clean water, toilet facility, family support, basic antenatal information, etc.) in the community, socioeconomic status of mothers, nutritional status of mother, growth status of children (stunting, wasting, etc.), mothers Knowledge, Perception, Attitude and Practice (KAP) of child survival strategies (antenatal care, exclusive breastfeeding, complementary feeding, immunization, vitamin A supplementation, growth monitoring, oral rehydration therapy and family planning), Primary Health Care facilities and knowledge of child survival strategies of Health Workers.

Data was collected using quantitative and qualitative methods. Semi-structured questionnaire was used to gather information on demographic characteristics of the study population, nutritional status of mother-child pair and KAP of child survival strategies. Focus Group Discussion was conducted targeting 8 caregivers, while KII was conducted with a matron in each Primary Health Centre; this was to retrieve information on structures and systems that affect child survival in the community. Contextual analysis of literature related to child survival such as nutrition policy, health policy, agricultural policy, health workers training curriculum and methods, on-going and past programs, etc.

### **3.2 Intervention Used**

The intervention involved the development of a communication strategy to address nutrition issues affecting child survival in communities. Findings based on data analysis from baseline survey were instrumental in formulating an effective communication strategy with emphasis on gaps reported from phase one targeting the various audiences either as direct beneficiaries or influencers to achieve nutrition behaviour change for improved child survival. Based on identified gap in mothers' knowledge, attitude and practice of various child survival strategies from baseline assessment, key messages were developed using different behaviour change communication methods (community drama, audiovisual aids and nutritional health talks).

A community drama was developed by the Principal investigator titled 'My Pikin' to provide information on all components child survival strategies to mothers; while a weekly training module

was adapted using WHO/UNICEF Guide for Community Resource Persons (CORPs) with emphasis on visuals and nutrition health talks. The key messages centered on exclusive breastfeeding, growth monitoring, oral rehydration therapy and immunization. In Aviara, audiovisual aid was used as the method for information dissemination, while community drama was used at Idumesha and nutritional health talks at Okpara Inland. All interventions had a duration of three months, with a frequency of once weekly in each community.

The community drama was the story of a young woman who had just found out that she was pregnant and she was afraid she would lose her baby just like her older sister did. In a bid to secure the life of her unborn child she sought all the help she could get from whoever had any idea to boost the chances of her child living. She was faced with the challenge of following traditional practices or adhering to the health worker's instructions at her community clinic. This story gives the audience an opportunity to identify with the main character at different points of her pregnancy; also provides correct information on best practices to ensure child survival during pregnancy and after birth.

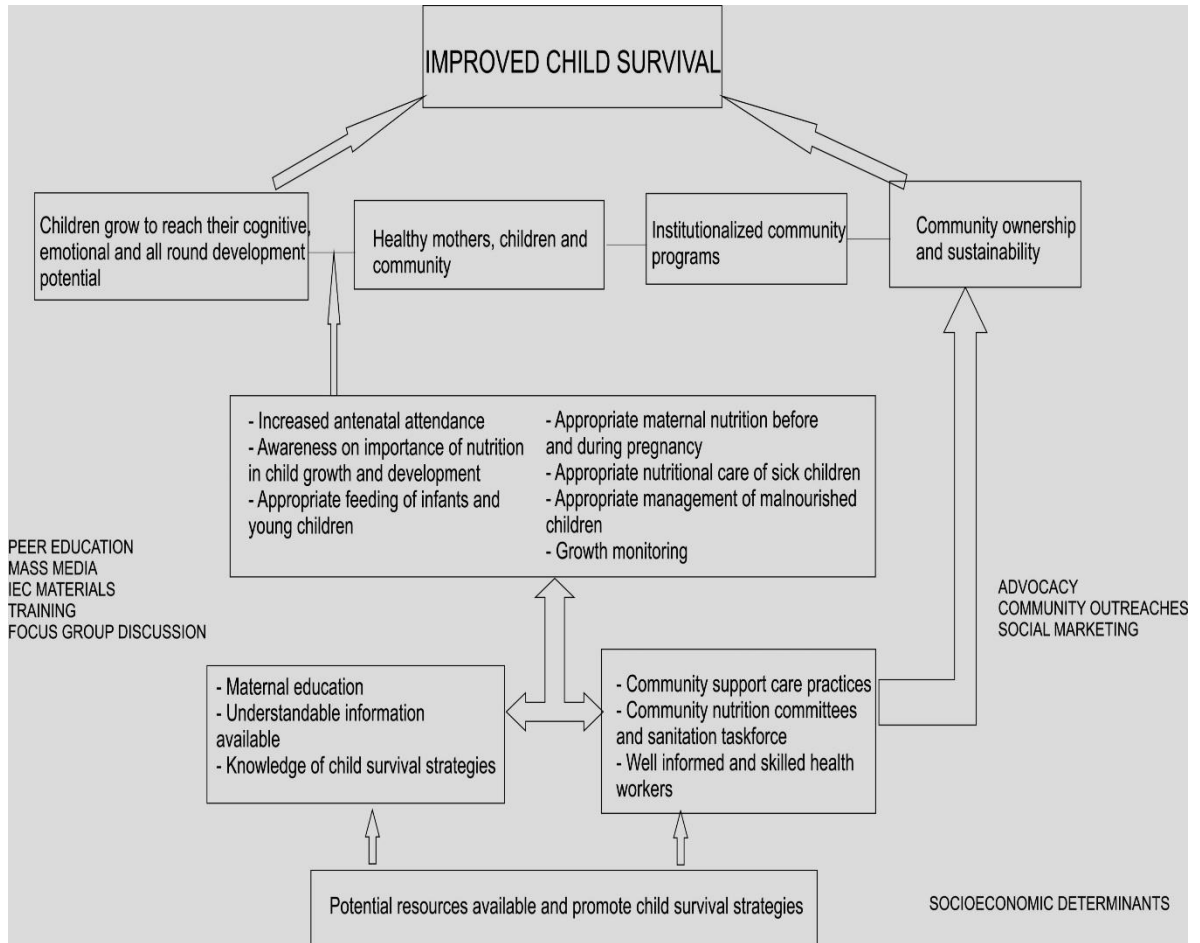
**3.2.1 Phase two:** Data was collected using same questionnaire post-intervention. A post-intervention evaluation survey was then conducted to measure the effect of the intervention. Nine research assistants were recruited and trained on how to administer the questionnaire; three from each Local Government Area.

### **3.3 Communication Theory**

The social cognitive theory by Albert Bandura and entertainment-education theory were used in developing behaviour change communication strategy for this study. This was to ensure increase in attention, retention, motivation and practice of child survival strategies. Social cognitive theory also came into play in the development of the drama script, where a role model (the protagonist in the story) was created who was rewarded for making the right choices during pregnancy and lactation.



### 3.4 Conceptual framework



**Figure 3.3: Conceptual Framework for Study**

Based on the above framework, this study sought to explore various communication mix targeting lactating women and health facility workers that play direct and indirect roles in child care for improved child survival.

**3.5 Specific objective 1:** To determine available community or family support systems for the practice of child survival strategies in Delta State of Nigeria.

**3.5.1 Specific objective 2:** To investigate the knowledge of the Health workers disseminating child survival messages and the quality of the message being disseminated.

**3.5.2 Specific Objective 3:** To investigate the Knowledge, Attitude and Practice (KAP) of child survival strategies among mothers with children 0-24 months in Delta State of Nigeria.

**3.5.3 Specific objective 4:** To explore effective behaviour change communication methods and channels in providing information on child survival strategies towards behaviour change and sustained practice by mothers of children 0-24months in Delta State of Nigeria

**Table 3.1: Activities and Resources to Achieve Objective One**

<b>ACTIVITY</b>	<b>INDICATORS</b>	<b>OUTCOME MEASURE</b>	<b>DATA COLLECTION TOOLS</b>
<b>Baseline survey for all mothers</b>	Socioeconomic characteristics, availability of public utilities, family support system, functionality of health centre, etc	Community and family support available	Questionnaire designed using universal and national templates
<b>Focus group discussions for selected mothers</b>	Knowledge on nutrition practices, attitudes, bottlenecks and environmental factors	Household and individual dynamics that influence behaviour change	FGD Question guide Tape recorder, note taker
<b>Key Informant Interviews for health workers</b>	Resources available, sanitation and hygienic conditions, cultural practices	Environmental factors that influence health nutrition behaviour	KII Question guide Tape recorder Note taker

**Table 3.2: Activities and Resources to Achieve Objective Two**

<b>ACTIVITY</b>	<b>INDICATORS</b>	<b>OUTCOME MEASURE</b>	<b>DATA COLLECTION TOOLS</b>
<b>Baseline survey for all health workers in communities</b>	<ul style="list-style-type: none"> <li>- Knowledge of child survival strategies</li> <li>- Method used for information dissemination</li> <li>- Attitude towards nutrition programs,</li> <li>- Practice of facility-based interventions (GMP, immunization, Vit. A, etc)</li> <li>- Available equipment, level of training, antenatal attendance</li> </ul>	<ul style="list-style-type: none"> <li>- KAP of Health Workers</li> <li>- Identified gaps</li> <li>- Level of demand for services generated at facility level</li> </ul>	<ul style="list-style-type: none"> <li>Questionnaire and KII question guide</li> </ul>
<b>Key Informant Interviews for health workers</b>	<ul style="list-style-type: none"> <li>- Resources available, sanitation and hygienic conditions, cultural practices</li> </ul>	<ul style="list-style-type: none"> <li>- Environmental factors that influence health nutrition behaviour</li> </ul>	<ul style="list-style-type: none"> <li>Question guidelines</li> <li>Tape recorder</li> <li>Note taker</li> </ul>

**Table 3.3: Activities and Resources to Achieve Objective Three**

<b>ACTIVITY</b>	<b>INDICATORS</b>	<b>OUTCOME MEASURE</b>	<b>DATA COLLECTION TOOLS</b>
<b>Baseline and Post-intervention survey for all mothers</b>	Mother's KAP of anthropometric data of mother and child	Knowledge, Attitude and Practice regarding child survival strategies	- Questionnaires designed using universal and national templates - Weighing scales and height-meter

**Table 3.4: Activities and Resources to Achieve Objective Four**

<b>ACTIVITY</b>	<b>COMMUNICATION METHODS</b>	<b>OUTCOME MEASURE</b>	<b>MONITORING &amp; EVALUATION TOOLS</b>
<b>Intervention using different behaviour change communication methods for mothers in intervention communities</b>	- Audiovisual aid - Community drama - Health Talks	-Increase in nutrition knowledge and adoption of behaviour change,  -Increased practice of child survival strategies  -Acquire skills to practice adequate nutrition at household level	Knowledge, Attitude and Practice Scores post-intervention using same questionnaire

### **3.6 Study Duration**

- Formative research period: 3 months
- Intervention period: 3 months
- Post-intervention evaluation: 3 months

### **3.7 Ethical considerations, informed consent and confidentiality**

This study complied with high ethical standards involving human participants. Ethical approval was gotten from the Institute for Advanced Medical Research and Training of UI/UCH Ethics Committee. The following ethical activities were accomplished in the context of the study:

- a) All the study personnel were trained on relevant aspects of good ethical standards that are envisaged in this study. They were also required to make commitments to abide with the ethical standards.
- b) All potential study participants were informed about the following:
  - The objectives, methods, potential benefits and harm (if any) of the research;
  - Right to abstain from participation in the study at any time, even during the course of the study the confidential nature of responses.
- c) Every individual that participated in the study was given adequate information about the study to enable him or her take an informed decision about participation in the study and to formally give or not to give consent to participate. They did this without any pressure or inducement whatsoever from the study personnel.
- d) Informed consent was gotten by signature or thumbprinting before interviews were conducted for each study participant
- e) Unless the persons involved in the study consent before the end of the study their identities were not included in the final report of the study.

### **Validity and Reliability**

Questionnaire content was reviewed by three experts in the field of child survival strategies, nutrition, health promotion and behaviour change communication. An average score of 90% was given by the expert reviewers. After content and face validity were approved, the reliability of the questionnaire was tested using Cronbach's alpha coefficient in a pilot study on 36 participants with similar socioeconomic background and geographical location as the study population ( $\alpha = 0.70$ ).

### **3.8 Data Management and Analysis**

Data was coded and entered into spread sheet. Analysis was done using Statistical Package for Social Sciences (SPSS) version 21.0. Descriptive statistics (frequency counts, percentages, mean and standard deviation) were used to summarize and present the results. To test the mean difference between the control and intervention groups at baseline and end-line, the independent sample t-test was used. The independent sample t-test is a statistical method of hypothesis testing that determines whether there is a statistically significant difference between the means of two independent samples. To test the significant difference between the three BCC strategies and control the One-Way Analysis of Variance was used. The three categories were the BCC strategies employed; Community drama, Audio-Visual, Nutrition talk, and the control group. The dependent variable in each case was the knowledge score, attitude score and practice scores. The One-Way Analysis of Variance evaluates whether all the samples are the same. The One-Way ANOVA determines whether there are any statistically significant differences between the means of three or more independent groups.

To test the significant association between the levels of knowledge, attitude and practice, the Chi-square statistical test of association was used. The Chi-square test of independence is used to determine if there is a significant relationship between two nominal (categorical) variables. The tests were carried out at 95% confidence interval hence the null hypothesis is rejected when the significant-p value is less or equal to 0.05 and accepted otherwise. The tests are done on IBM SPSS statistics version 25.

Nutritional status of infants was analyzed using WHO Anthro software to explore levels of malnutrition (stunting, underweight or wasting). Qualitative data from FGD, KII and in-depth interviews was professionally transcribed and analysed thematically. Dominant themes came up from the qualitative data were woven with quantitative data to design a model which demonstrated how experimental groups benefited from the intervention. The questionnaire contained 39 knowledge questions, 27 attitude questions and 15 practice questions, with each question equal to one (1) point. The questions were classified into the following categories:

#### **Knowledge Scale**

- Poor Knowledge (Score = 0-14)
- Fair Knowledge (Score = 15-20)

- Good Knowledge (Score  $\geq 21$ )

#### Attitude Scale

- Negative Attitude (Score = 0-7)
- Positive Attitude (Score = 8-27)

#### Practice Scale

- Poor Practice (Score = 0-5)
- Fair Practice (Score = 6-10)
- Good Practice (Score = 11-15)

#### Variables Used to Measure Practice

- Where child was delivered
- Growth monitoring compliance (frequency of monitoring)
- Breastfeeding compliance (initiation, exclusive breastfeeding and weaning period)
- Immunization received



## CHAPTER FOUR

### RESULTS

#### 4.0 Demographic Characteristics of Mothers

Three Local Government Areas (LGAs) involved in the study were Isoko South, Ika North East and Ethiope East. Two communities from each LGA were involved in the study, Irri (12.5%), Aviara (17.5%), Idumesha (18.8%), Ute-Okpu (15.4%), Orhoakpo (14.2%) and Okpara Inland (21.7%). This was due to the fact that some communities had a higher number of women who attended antenatal clinic than others; Okpara Inland (21.7%) had the highest proportion of mothers.

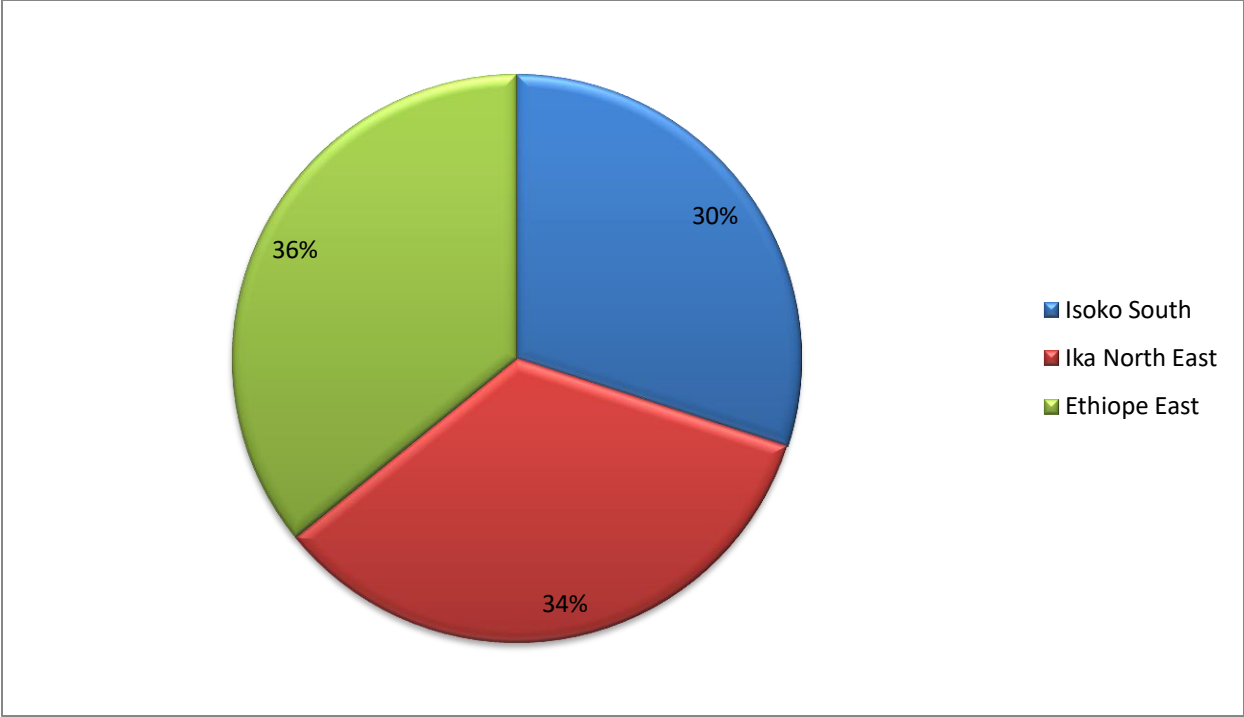
The age of the children ranged from 0 to 24 months (Mean  $\pm$  SD = 6.2  $\pm$  5.2). With regards to the mothers, their age ranged between 15 to 45 years (Mean  $\pm$  SD = 27.8  $\pm$  5.6). Majority (80.1%) of the mothers was of reproductive age between 20 to 34 years and they were all Christians. Large proportions of the mothers were Ika (39.5%), Isoko (33.5%) or Urohobo (28.3%); only a few (1.7%) were Igala, Ukwani or Anioma. Most (87.6%) of the mothers were married and 89.5% were from a monogamous family.

**Table 4.1 Demographic Characteristics of Mothers**

<b>Variables</b>	<b>Isoko South n (%)</b>	<b>Ika North East n (%)</b>	<b>Ethiope East n (%)</b>	<b>Total (%)</b>
<b>Community</b>				
Irri	30 (41.7)	0 (0.0)	0 (0.0)	30 (12.5)
Aviara	42 (58.3)	0 (0.0)	0 (0.0)	42 (17.5)
Idumesha	0 (0.0)	45 (54.9)	0 (0.0)	45 (18.8)
Ute-Okpu	0 (0.0)	37 (45.1)	0 (0.0)	37 (15.4)
Orhoakpo	0 (0.0)	0 (0.0)	34 (39.5)	34 (14.2)
Okpara Inland	0 (0.0)	0 (0.0)	52 (60.5)	52 (21.7)
<b>Age of Child in months (Mean±SD = 6.2 ± 5.2)</b>				
0-6	50 (69.4)	48 (58.5)	56 (66.7)	154 (64.7)
7-12	17 (23.6)	20 (24.4)	25 (29.8)	62 (26.1)
13-24	5 (6.9)	14 (17.1)	3 (3.6)	22 (9.2)
<b>Sex of Child</b>				
Male	34 (47.2)	46 (56.1)	42 (48.8)	122 (50.8)
Female	38 (52.8)	36 (43.9)	44 (51.2)	118 (49.2)
<b>Age of Mother in years (Mean±SD = 27.8 ± 5.6)</b>				
<19	5 (7.4)	5 (6.3)	6 (7.6)	16 (7.0)
20-24	7 (10.3)	30 (37.5)	18 (22.8)	55 (24.2)
25-29	21 (30.9)	28 (35.0)	28 (35.4)	77 (33.9)
30-34	23 (33.8)	10 (12.5)	17 (21.5)	50 (22.0)
35-39	11 (16.2)	4 (5.0)	4 (5.1)	19 (8.4)
>40	1 (1.5)	3 (3.8)	6 (7.6)	10 (4.4)

**Table 4.1: Demographic Characteristics of Mothers Continued**

<b>Variables</b>	<b>Isoko South n (%)</b>	<b>Ika North East n (%)</b>	<b>Ethiope East n (%)</b>	<b>Total n (%)</b>
<b>Religion</b>				
Christian	71 (100)	80 (100)	85 (100)	236 (100)
<b>Ethnicity</b>				
Isoko	68 (97.1)	0 (0.0)	3 (3.5)	71 (30.5)
Urhobo	1 (1.4)	3 (3.8)	62 (72.9)	66 (28.3)
Ika	0 (0.0)	74 (94.9)	18 (21.2)	92 (39.5)
Aniocha	0 (0.0)	0 (0.0)	1 (1.2)	1 (0.4)
Ukwani	0 (0.0)	1 (1.3)	0 (0.0)	1 (0.4)
Igala	1 (1.4)	0 (0.0)	1 (1.2)	2 (0.9)
Total	70 (100)	78 (100)	85 (100)	233 (100)
<b>Marital status</b>				
Married	60 (88.2)	71 (88.8)	73 (85.9)	204 (87.6)
Single	8 (11.8)	6 (7.5)	8 (9.4)	22 (9.4)
Divorced	0 (0.0)	2 (2.5)	2 (2.4)	4 (1.7)
Widowed	0 (0.0)	1 (1.3)	2 (2.4)	3 (1.3)
Total	68 (100)	80 (100)	85 (100)	233 (100)
<b>Polygamous family</b>				
No	62 (91.2)	68 (88.3)	75 (89.3)	205 (89.5)
Yes	6 (8.8)	9 (11.7)	9 (10.7)	24 (10.5)
Total	68 (100)	77 (100)	84 (100)	229 (100)



**Figure 4.1: Proportion of Mothers from each Local Government Area involved in the Study**

#### **4.0.1 Socioeconomic Characteristics of Households**

Most (63.3%) households had one to two children under-two years' of age. Two thirds (66.8%) of the mothers had secondary education, while the other mothers had primary (9.8%) and tertiary (22.1%) education. A low proportion (1.3%) had no formal education. Most (54.1%) of the mothers were businesswomen, while more than a quarter (28.6%) were full housewives. Greater proportions (73.5%) of the fathers were businessmen. About a third (38.3%) of the mothers had monthly income less than ten thousand naira while 27.7% could not quantify their monthly income. Only a few (7.3%) of mothers had monthly income between forty-one thousand and a hundred thousand naira. As for the father's monthly income, most (44.4%) of the women did not know how much their spouses earned. Majority (81.3%) of the houses were built using bricks; less than half (44.3%) of the households had two rooms.

More than a quarter (29.4%) of the households had a television. 27.6% had radio, television and refrigerators in their homes. Majority (62.3%) of households used water closet toilet system, while (30.3%, 4.8% and 2.6%) used latrine, bush and had no access to toilet facility respectively. About a half (48.9%) used Power Holding Company of Nigeria as their main source of electricity. Less than half (42.1%) used generators and only a few (2.1%) had access to solar panel as their source of electricity. However, 6.9% had no source of electricity.

**Table 4.2: Socioeconomic Characteristics of Households**

<b>Variables</b>	<b>Isoko South n (%)</b>	<b>Ika North East n (%)</b>	<b>Ethiope East n (%)</b>	<b>Total n (%)</b>
<b>No. of Under-2 children in household</b>				
No Response	7 (14.6)	7 (16.7)	10 (14.7)	24 (15.2)
1-2 children	31 (64.6)	23 (54.8)	46 (67.6)	100 (63.3)
3-4 children	10 (20.8)	10 (23.8)	8 (11.8)	28 (17.7)
>5 children	0 (0.0)	2 (4.8)	4 (5.9)	6 (3.8)
Total	48 (100)	42 (100)	68 (100)	158 (100)
<b>Education of mother</b>				
No formal Education	2 (2.8)	0 (0.0)	1 (1.2)	3 (1.3)
Primary	4 (5.6)	6 (7.5)	13 (15.5)	23 (9.8)
Secondary	47 (66.2)	59 (73.8)	51 (60.7)	157 (66.8)
Tertiary	18 (25.4)	15 (18.8)	19 (22.6)	52 (22.1)
Total	71 (100)	80 (100)	84 (100)	235 (100)
<b>Mother's Occupation</b>				
Full house wife	20 (28.6)	19 (24.1)	27 (32.9)	66 (28.6)
Student	3 (4.3)	4 (5.1)	5 (6.1)	12 (5.2)
Civil Servant	7 (10.0)	1 (1.3)	4 (4.9)	12 (5.2)
Farmer	1 (1.4)	0 (0.0)	2 (2.4)	3 (1.3)
Trader	2 (2.9)	0 (0.0)	4 (4.9)	6 (2.6)
Artisan	5 (7.1)	0 (0.0)	2 (2.4)	7 (3.0)
Businesswoman	32 (45.7)	55 (69.6)	38 (46.3)	125 (54.1)
Total	70 (100)	79 (100)	82 (100)	231 (100)

**Table 4.2: Socioeconomic Characteristics of Households Continued**

<b>Variables</b>	<b>Isoko South n (%)</b>	<b>Ika North East n (%)</b>	<b>Ethiope East n (%)</b>	<b>Total n (%)</b>
<b>Father's Occupation</b>				
Unemployed	6 (8.9)	3 (4.0)	3 (3.8)	12 (5.3)
Student	1 (1.5)	4 (5.3)	1 (1.3)	6 (2.7)
Civil Servant	2 (2.9)	0 (0.0)	10 (12.5)	12 (5.4)
Businessman	39 (57.4)	66 (88.0)	59 (73.8)	164 (73.5)
Artisan	20 (29.3)	2 (2.7)	7 (8.8)	29 (13.0)
Total	68 (100)	75 (100)	80 (100)	223 (100)
<b>Mother's monthly income</b>				
<N10,000	36 (58.1)	19 (26.0)	24 (33.8)	79 (38.3)
N10,000-40,000	18 (29.0)	20 (27.4)	17 (23.9)	55 (26.7)
N41,000-70,000	1 (1.6)	3 (4.1)	8 (11.3)	12 (5.8)
N71,000-100,000	0 (0.0)	1 (1.4)	2 (2.8)	3 (1.5)
Do not know	7 (11.3)	30 (41.1)	20 (28.2)	57 (27.7)
Total	62 (100)	73 (100)	71 (100)	206 (100)
<b>Father's monthly income</b>				
<N10,000	14 (20.6)	3 (3.9)	8 (11.1)	25 (11.6)
N10,000-40,000	22 (32.4)	13 (17.1)	15 (20.8)	50 (23.1)
N41,000-70,000	12 (17.6)	9 (11.8)	8 (11.1)	29 (13.4)
N71,000-100,000	1 (1.5)	4 (5.3)	6 (8.3)	11 (5.1)
N101,000-130,000	0 (0.0)	0 (0.0)	1 (1.4)	1 (0.5)
>N130,000	2 (2.9)	0 (0.0)	2 (2.8)	4 (1.9)
Do not know	17 (25.0)	47 (61.8)	32 (44.4)	96 (44.4)
Total	68 (100)	76 (100)	72 (100)	216 (100)

**Table 4.2: Socioeconomic Characteristics of Households Continued**

<b>Variables</b>	<b>Isoko South</b>	<b>Ika North East</b>	<b>Ethiope East</b>	<b>Total</b>
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
<b>Material used in building</b>				
Bricks	61 (88.4)	63 (78.8)	63 (77.8)	187 (81.3)
Thatches	1 (1.4)	5 (6.3)	2 (2.5)	8 (3.5)
Bamboo	1 (1.4)	0 (0.0)	1 (1.2)	2 (0.9)
Roofing sheets	5 (7.2)	12 (15.0)	13 (16.0)	30 (13.0)
Wood	1 (1.4)	0 (0.0)	2 (2.5)	3 (1.3)
Total	69 (100)	80 (100)	81 (100)	230 (100)
<b>No. of rooms</b>				
1 room	6 (8.5)	8 (10.1)	15 (17.6)	29 (12.3)
2 rooms	23 (32.4)	43 (54.4)	38 (44.7)	104 (44.3)
3 rooms	23 (32.4)	19 (24.1)	22 (25.9)	64 (27.2)
>3 rooms	19 (26.8)	9 (11.4)	10 (11.8)	38 (16.2)
Total	71 (100)	79 (100)	85 (100)	235 (100)
<b>Appliances in the house</b>				
None	1 (1.5)	2 (2.7)	2 (2.5)	5 (2.3)
Radio	2 (2.9)	1 (1.4)	6 (7.6)	9 (4.1)
Television	18 (26.5)	29 (39.2)	18 (22.8)	65 (29.4)
Refrigerator	1 (1.5)	0 (0.0)	0 (0.0)	1 (0.5)
Radio & Television	9 (13.2)	8 (10.8)	20 (25.3)	37 (16.7)
All	12 (17.6)	26 (35.1)	23 (29.1)	61 (27.6)
Television & Refrigerator	25 (36.8)	8 (10.8)	10 (12.7)	43 (19.5)
Total	68 (100)	74 (100)	79 (100)	221 (100)



**Table 4.2: Socioeconomic Characteristics of Households Continued**

<b>Variables</b>	<b>Isoko South</b>	<b>Ika North East</b>	<b>Ethiope East</b>	<b>Total</b>
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
<b>Type of toilet</b>				
Latrine	8 (11.6)	42 (52.5)	20 (24.4)	70 (30.3)
Water closet	61 (88.4)	35 (43.8)	48 (58.5)	144 (62.3)
Bush	0 (0.0)	3 (3.8)	8 (9.8)	11 (4.8)
None	0 (0.0)	0 (0.0)	6 (7.3)	6 (2.6)
Total	69 (100)	80 (100)	82 (100)	231 (100)
<b>Major source of electricity</b>				
None	4 (5.7)	8 (10.3)	4 (4.7)	16 (6.9)
PHCN	38 (54.3)	19 (24.4)	57 (67.1)	114 (48.9)
Generator	28 (40.0)	49 (62.8)	21 (24.7)	98 (42.1)
Solar panel	0 (0.0)	2 (2.6)	3 (3.5)	5 (2.1)
Total	70 (100)	78 (100)	85 (100)	233 (100)

#### **4.0.2 Socioeconomic Characteristics of Mothers**

About a half (49.3%) of the mothers spent six to eight hours at work. 88.0% of mothers went to work two to six days in a week and majority (66.5%) took their child to work. About a third 36.9% of mothers did not spend quality time with their children.

**Table 4.3: Socioeconomic Characteristics of Mothers**

<b>Variables</b>	<b>Isoko South</b>	<b>Ika North East</b>	<b>Ethiope East</b>	<b>Total</b>
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
<b>Number of hours mother spent at work</b>				
<6 hours	24 (36.9)	23 (33.3)	25 (36.2)	72 (35.5)
6-8 hours	31 (47.7)	38 (55.1)	31 (44.9)	100 (49.3)
> 8 hours	10 (15.4)	8 (11.6)	13 (18.8)	31 (15.3)
Total	65 (100)	69 (100)	69 (100)	203 (100)
<b>Frequency of work in a week</b>				
Rarely	12 (18.8)	14 (19.7)	14 (18.9)	40 (19.1)
Once a week	3 (4.7)	2 (2.8)	1 (1.4)	6 (2.9)
2-3 days weekly	18 (28.1)	14 (19.7)	11 (14.9)	43 (20.6)
4-6 days weekly	14 (21.9)	26 (36.6)	29 (39.2)	69 (33.0)
Daily	17 (26.6)	15 (21.1)	19 (25.7)	51 (24.4)
Total	64 (100)	71 (100)	74 (100)	209 (100)
<b>Mother usually takes baby to work</b>				
No	15 (22.4)	34 (47.2)	24 (30.4)	73 (33.5)
Yes	52 (77.6)	38 (52.8)	55 (69.6)	145 (66.5)
Total	67 (100)	72 (100)	79 (100)	218 (100)
<b>Spends quality time with your baby</b>				
Not often	31 (45.6)	22 (30.1)	29 (35.8)	82 (36.9)
Often	24 (35.3)	27 (37.0)	26 (32.1)	77 (34.7)
Very often	13 (19.1)	24 (32.9)	26 (32.1)	63 (28.4)
Total	68 (100)	73 (100)	81 (100)	222 (100)

Objective One: To determine available community or family support systems for the practice of child survival strategies in Delta State of Nigeria

#### **4.1 Family and Community Support Systems available to Mothers**

More than half (50.7%) of the respondents received information on pregnancy as teenagers. Mothers (67.5%) were the major source of information on pregnancy, followed by school teacher (11.4%) and a combination of mother and mass media (8.8%). A large proportion (95.8%) of the mothers reported they had health education during antenatal clinics; 37% of them had gotten information on five to nine topics covering child survival strategies, only 2.7% reported that all topics outlined were covered. Most (83.8%) of the mothers reported that talk and seminars were the most frequently used method of information dissemination. Few (1.8%) of the mothers reported the use of drama.

Majority (72.2%) of the mothers received infant feeding information during antenatal visits, while only 2.4% reported they received counseling on infant feeding. Although most (61.4%) of the mothers had received infant feeding information or support, 38.6% had not. This is a huge gap in service delivery. More than half (66.7%) of the mothers received infant feeding information from a nurse, midwife, matron or doctor, while 16.3% received information from their mothers. Information from mothers might pose a challenge in the area of traditional practices or myths that do not support healthy child care and nutrition. Although 30.2% mothers reported receiving infant feeding support from a nurse, 29.2% received same support from their mothers.

More than half (55.7%) of the mothers were delivered of their baby by a health professional; about 8.8% patronized the services of Traditional Birth Attendants (TBA) or a family member (2.8%). It is suspected that this proportion might be higher since focus group discussion and key informant interview revealed that some TBAs have branded themselves as private hospitals. So, there is the likelihood that the mothers who claimed to have given birth at private hospitals actually used a TBA. Although 38.7% of the mothers reported that they received counseling services after delivery, 11.8% did not receive any form of service. Less than a quarter (15.1%) of the mothers reported that they received all services (counseling, assistance in breastfeeding, infant feeding demonstrations, etc.). About two thirds (60.8%) of the mothers received vitamin A within six weeks after delivery.

Children above six months who had received vitamin A were 58.3%, while 41.7% had not. Although about a third (37.7%) of the babies were given to their mothers immediately after delivery, 1.4% had

to wait up to four days before their baby could be given due to different reasons. More than half (60.8%) of the mothers did not receive assistance to start breastfeeding; those who did were mainly assisted by their mother (24.1%).

**Table 4.4: Family and Community Support Systems available to Mothers**

<b>Variables</b>	<b>Isoko South n (%)</b>	<b>Ika North East n (%)</b>	<b>Ethiope East n (%)</b>	<b>Total n (%)</b>
<b>Received info on pregnancy as a teenager</b>				
No	23 (33.8)	45 (56.3)	44 (55.7)	112 (49.3)
Yes	45 (66.2)	35 (43.8)	35 (44.3)	115 (50.7)
<b>Source of info on pregnancy</b>				
Mother	32 (71.1)	26 (81.3)	19 (51.4)	77 (67.5)
Mass media	0 (0.0)	1 (3.1)	2 (5.4)	3 (2.6)
School teacher	4 (8.9)	3 (9.4)	6 (16.2)	13 (11.4)
Friends	2 (4.4)	2 (6.3)	2 (5.4)	6 (5.3)
Books/Flyers/Posters	1 (2.2)	0 (0.0)	1 (2.7)	2 (1.8)
Internet	1 (2.2)	0 (0.0)	0 (0.0)	1 (0.9)
Mother & Media	2 (4.4)	0 (0.0)	0 (0.0)	2 (1.8)
Mother & others	3 (6.7)	0 (0.00)	7 (18.9)	10 (8.8)
<b>Health education during ANC</b>				
No	1 (1.5)	5 (7.0)	3 (3.8)	9 (4.2)
Yes	65 (98.5)	66 (93.0)	75 (96.2)	206 (95.8)
<b>Number of topics covered during health education</b>				
No topics	0 (0.0)	2 (2.7)	10 (12.7)	12 (5.5)
At least 4 topics	30 (46.2)	12 (16.0)	22 (27.8)	64 (29.2)
Btw 5-9 topics	17 (26.2)	41 (54.7)	23 (29.1)	81 (37.0)
Btw 10-12 topics	14 (21.5)	20 (26.7)	22 (27.8)	56 (25.6)
All topics	4 (6.2)	0 (0.0)	2 (2.5)	6 (2.7)
Total	65 (100)	75 (100)	79 (100)	219 (100)

**Table 4.4: Family and Community Support Systems available to Mothers continued**

<b>Variables</b>	<b>Isoko South n (%)</b>	<b>Ika North East n (%)</b>	<b>Ethiope East n (%)</b>	<b>Total n (%)</b>
<b>Method used in health education</b>				
None	0 (0.0)	1 (1.3)	5 (6.2)	6 (2.7)
Talk & Seminar	62 (93.9)	64 (85.3)	60 (74.1)	186 (83.8)
Announcements	0 (0.0)	0 (0.0)	4 (4.9)	4 (1.8)
Flyers & Poster	0 (0.0)	0 (0.0)	1 (1.2)	1 (0.5)
Songs	3 (4.5)	0 (0.0)	2 (2.5)	5 (2.3)
Drama	0 (0.0)	3 (4.0)	1 (1.2)	4 (1.8)
Talk, Announcement & Songs	0 (0.0)	7 (9.3)	0 (0.0)	7 (3.2)
Talk, Poster & Songs	1 (1.5)	0 (0.0)	0 (0.0)	1 (0.5)
Talk & Songs	0 (0.0)	0 (0.0)	5 (6.2)	5 (2.3)
Talk & Announcements	0 (0.0)	0 (0.0)	3 (3.7)	3 (1.4)
<b>Received information on infant feeding</b>				
No	19 (28.4)	33 (44.6)	33 (41.8)	85 (38.6)
Yes	48 (71.6)	41 (55.4)	46 (58.2)	135 (61.4)
<b>Received any of the following services</b>				
No information	0 (0.0)	5 (7.0)	9 (12.2)	14 (6.8)
Infant feeding information	50 (83.3)	57 (80.3)	41 (55.4)	148 (72.2)
Infant feeding demonstration	0 (0.0)	1 (1.4)	4 (5.4)	5 (2.4)
Infant feeding counseling	2 (3.3)	3 (4.2)	2 (2.7)	7 (3.4)
Information & Demonstration	1 (1.7)	0 (0.0)	0 (0.0)	1 (0.5)
All	4 (6.7)	5 (7.0)	14 (18.9)	23 (11.2)
Demonstration & Counseling	3 (5.0)	0 (0.0)	3 (4.1)	6 (2.9)
Information & Counseling	0 (0.0)	0 (0.0)	1 (1.4)	1 (0.5)

**Table 4.4: Family and Community Support Systems available to Mothers continued**

<b>Variables</b>	<b>Isoko South n (%)</b>	<b>Ika North East n (%)</b>	<b>Ethiope East n (%)</b>	<b>Total n (%)</b>
<b>Received infant feeding information from</b>				
Nobody	14 (28.6)	1 (3.0)	6 (14.6)	21 (17.1)
Nurse	26 (53.1)	9 (27.9)	17 (41.5)	52 (42.3)
Midwife	5 (10.2)	11 (33.3)	3 (7.3)	19 (15.4)
Matron	1 (2.0)	2 (6.1)	3 (7.3)	6 (4.9)
Doctor	3 (6.1)	0 (0.0)	2 (4.9)	5 (4.1)
Mother	0 (0.0)	10 (30.3)	10 (24.4)	20 (16.3)
<b>Received infant feeding support/assistance from</b>				
Nobody	13 (28.9)	0 (0.0)	9 (25.0)	22 (22.9)
Nurse	9 (20.0)	6 (40.0)	14 (38.9)	29 (30.2)
Midwife	4 (8.9)	4 (26.7)	2 (5.6)	10 (10.4)
Matron	0 (0.0)	0 (0.0)	2 (5.6)	2 (2.1)
Doctor	0 (0.0)	0 (0.0)	1 (2.8)	1 (1.0)
Mother	16 (35.6)	5 (33.3)	7 (19.4)	28 (29.2)
Husband	3 (6.7)	0 (0.0)	1 (2.8)	4 (4.2)
<b>Assisted with the delivery of (index child) by</b>				
Nobody	1 (1.4)	1 (1.4)	4 (5.3)	6 (2.8)
TBA	5 (7.2)	6 (8.3)	8 (10.5)	19 (8.8)
Medical doctor	6 (8.7)	13 (18.1)	20 (26.3)	39 (18.0)
Midwife/Nurse	55 (79.7)	51 (70.8)	41 (53.9)	147 (67.7)
Family member	2 (2.9)	1 (1.4)	3 (3.9)	6 (2.8)



**Table 4.4: Family and Community Support Systems available to Mothers continued**

<b>Variables</b>	<b>Isoko South n (%)</b>	<b>Ika North East n (%)</b>	<b>Ethiope East n (%)</b>	<b>Total n (%)</b>
<b>Got the following services after delivery</b>				
None	2 (3.4)	8 (14.5)	12 (16.7)	22 (11.8)
Counsel/Advice on infant feeding	13 (22.0)	32 (58.2)	27 (37.5)	72 (38.7)
Assistance in Breastfeeding	31 (52.5)	3 (5.5)	6 (8.3)	40 (21.5)
Infant feeding Demonstration	5 (8.5)	4 (7.3)	4 (5.6)	13 (7.0)
Counsel on IF & Assistance in BF	1 (1.7)	2 (3.6)	0 (0.0)	3 (1.6)
All services	5 (8.5)	6 (10.9)	17 (23.6)	28 (15.1)
Assistance & Demonstration	2 (3.4)	0 (0.0)	5 (6.9)	7 (3.8)
Advice on IF & Demonstration	0 (0.0)	0 (0.0)	1 (1.4)	1 (0.5)
<b>Received vitamin A within 6 weeks after delivery</b>				
No	12 (17.4)	42 (55.3)	29 (37.7)	83 (37.4)
Yes	57 (82.6)	34 (44.7)	48 (62.3)	139 (62.6)
<b>Index child received any postnatal care outside the health facility</b>				
No	29 (43.3)	44 (64.7)	56 (72.7)	129 (60.8)
Yes	38 (56.7)	24 (35.3)	21 (27.3)	83 (39.2)
<b>Index child received vitamin A</b>				
No	30 (44.1)	26 (41.9)	30 (39.5)	86 (41.7)
Yes	38 (55.9)	36 (58.1)	46 (60.5)	120 (58.3)
<b>Index child received any postnatal care outside the health facility</b>				
No	29 (43.3)	44 (64.7)	56 (72.7)	129 (60.8)
Yes	38 (56.7)	24 (35.3)	21 (27.3)	83 (39.2)

**Table 4.4: Family and Community Support Systems available to Mothers continued**

<b>Variables</b>	<b>Isoko South n (%)</b>	<b>Ika North East n (%)</b>	<b>Ethiope East n (%)</b>	<b>Total n (%)</b>
<b>Time after birth before index child was given to mother hold to skin-to-skin</b>				
Do not know	5 (7.6)	22 (29.7)	31 (40.8)	58 (26.9)
Not given	23 (34.8)	18 (24.3)	16 (21.1)	57 (26.4)
Immediately	31 (47.0)	27 (36.5)	23 (30.3)	81 (37.5)
1-3 hours	5 (7.6)	0 (0.0)	2 (2.6)	7 (3.2)
6 -8 hours	2 (3.0)	0 (0.0)	3 (3.9)	5 (2.3)
1-3 days	0 (0.0)	3 (4.2)	1 (1.3)	4 (2.4)
4-6 days	0 (0.0)	14(5.5)	0 (0.0)	4(1.9)
<b>Received assistance to start breast feeding (index child)</b>				
No	29 (43.3)	44 (64.7)	56 (72.7)	129 (60.8)
Yes	38 (56.7)	24 (35.3)	21 (27.3)	83 (39.2)
No one	1 (2.4)	20 (39.2)	21 (43.8)	42 (29.8)
Spouse	19 (45.2)	1 (2.0)	11 (22.9)	31 (22.0)
Mother	10 (23.8)	16 (31.4)	8 (16.7)	34 (24.1)
Sister/Sister-in-law	0 (0.0)	1 (2.0)	0 (0.0)	1 (0.7)
Mother-in-law	3 (7.1)	3 (5.9)	0 (0.0)	6 (4.3)
Friend / Neighbour	0 (0.0)	0 (0.0)	1 (2.1)	1 (0.7)
Health worker at health centre	8 (19.0)	9 (17.6)	7 (14.6)	24 (17.0)
Community health worker	1 (2.4)	1 (2.0)	0 (0.0)	2 (1.4)

Objective Two: To evaluate the knowledge of the Health workers regarding child survival strategies

#### **4.2 Demographic Characteristics of Health Workers**

A total of eighteen Health Workers in Primary Health Centres were administered semi-structured questionnaire. About a quarter (27.5%) of the Health Workers were from Okpara Inland and most (89.9%) of them were female. The age of health workers ranged from 20 to 58 years ( $36.6 \pm 12.9$ ). As regards ethnicity, majority (44.4%) of the Health Workers were Urohobo, while the others were Isoko (22.2%), Ika (22.2%), Anioma (5.6%) and Ukwani (5.6%). Most (66.7%) of the respondents had tertiary education while 33.3% had secondary education and were all Christians.

**Table 4.5: Demographic Characteristics of Health Workers**

<b>Variables</b>	<b>Isoko South</b>	<b>Ika North East</b>	<b>Ethiope East</b>	<b>Total</b>
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
<b>Community</b>				
Irri	2 (40.0)	0 (0.0)	0 (0.0)	2 (11.1)
Aviara	3 (60.0)	0 (0.0)	0 (0.0)	3 (16.7)
Idumesha	0 (0.0)	2 (40.0)	0 (0.0)	2 (11.1)
Ute-Okpu	0 (0.0)	3 (60.0)	0 (0.0)	3 (16.7)
Orhoakpo	0 (0.0)	0 (0.0)	3 (37.5)	3 (16.7)
Okpara Inland	0 (0.0)	0 (0.0)	5 (62.5)	5 (27.8)
Total	5 (100)	5 (100)	8 (100)	18 (100)
<b>Sex</b>				
Male	0 (0.0)	2 (40.0)	0 (0.0)	2 (11.1)
Female	5 (100)	3 (60.0)	8 (100)	16 (89.9)
Total	5 (100)	5 (100)	8 (100)	18 (100)
<b>Religion</b>				
Christian	5 (100)	5 (100)	8 (100)	18 (100)
<b>Highest level of Education</b>				
Secondary	2 (40.0)	1 (20.0)	3 (37.5)	6 (33.3)
Tertiary	3 (60.0)	4 (80.0)	5 (62.5)	12 (66.7)
Total	5 (100)	5 (100)	8 (100)	18 (100)

**Table 4.5: Demographic Characteristics of Health Workers continued**

<b>Variables</b>	<b>Isoko South n (%)</b>	<b>Ika North East n (%)</b>	<b>Ethiope East n (%)</b>	<b>Total n (%)</b>
<b>Age in years (Mean=36.6 ± 12.9)</b>				
<19years	0 (0.0)	0 (0.0)	2 (25.0)	2 (11.1)
20-24 years	1 (20.0)	1 (20.0)	3 (37.5)	5 (27.8)
25-29years	0 (0.0)	0 (0.0)	2 (25.0)	2 (11.1)
35-39years	0 (0.0)	0 (0.0)	1 (12.5)	1 (5.6)
>40 years	4 (80.0)	4 (80.0)	0 (0.0)	8 (44.4)
Total	5 (100)	5 (100)	8 (100)	18 (100)
<b>Ethnicity</b>				
Isoko	4 (80.0)	0 (0.0)	0 (0.0)	4 (22.2)
Urhobo	1 (20.0)	1 (20.0)	6 (75.0)	8 (44.4)
Ika	0 (0.0)	3 (60.0)	1 (12.5)	4 (22.2)
Anioma	0 (0.0)	1 (20.0)	0 (0.0)	1 (5.6)
Ukwani	0 (0.0)	0 (0.0)	1 (12.5)	1 (5.6)
Total	5 (100)	5 (100)	8 (100)	18 (100)

#### **4.2.1: Knowledge and Attitude of Health Workers Regarding Child Survival Strategies**

Results of assessment of knowledge and attitude of health workers showed that the least score of knowledge and attitude assessment was 0. The Maximum scores for attitude and knowledge of health workers is 26.0 and 42.0 respectively. The mean score which passes as the overall level or performance of the health workers on attitude and knowledge is 22.6 and 27.7 respectively.

Most of the health workers (88.9%) were categorized as having good knowledge while 11.1% had poor knowledge. There was no health worker with fair knowledge; either poor or good knowledge was observed. The levels of attitude and knowledge of health workers was investigated for significant association. There was a significant association between the knowledge and attitude of the health workers ( $\chi^2 = 8.471$ ,  $p < 0.05$ ). The null hypothesis is rejected hence it was observed that a significant association exist between the knowledge and attitude of the respondents.

**Table 4.6 Mean Knowledge and Attitude of Health Workers Regarding Child Survival Strategies**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Attitude</b>	18	0.00	26.00	22.5556	5.96285
<b>Knowledge</b>	18	0.00	42.00	27.7222	10.98558

**Table 4.7: Knowledge and Attitude of Health Workers Regarding Child Survival Strategies**

<b>Variables</b>	<b>n (%)</b>
Poor Knowledge (0-14)	2 (11.1)
Good Knowledge (21+)	16 (88.9)
Total	18 (100.0)
Negative Attitude (0-7)	1 (5.6)
Positive Attitude (8-27)	17 (94.4)
Total	18 (100.0)

**Table 4.8 Association between Knowledge and Attitude of Health Workers**

<b>Variables</b>		<b>Negative Attitude (0-7)</b>	<b>Positive Attitude (8-27)</b>	<b>Total n(%)</b>	<b>X<sup>2</sup> (p)</b>
<b>Knowledge Class</b>	Poor Knowledge (0-14)	1 (50%)	1 (50%)	2 (100)	8.471 (0.004)
	Good Knowledge (21+)	0 (0.0%)	16 (100%)	16 (100)	
<b>Total</b>		1 (5.6%)	17 (94.4%)	18 (100)	



#### **4.2.2 Summary of Key Informant Interviews Conducted with Health Workers in Primary Health Centres**

A total of six health workers were interviewed during the baseline data collection for this study, most (4) of them were the Matrons while others were Senior Health Assistants. The summary of information gathered from the interview sessions is presented below:

##### ***Nutritional and Health Status of Children***

- The matrons rated the nutritional health of children in their communities as above average basing this on the fact that there had been no issue of malnutrition on a large scale.
- The matron at Ute-Okpu mentioned she had only treated one case of malnutrition since she resumed duty a few months earlier.
- At Irri, the matron reported that no child was malnourished in the community based on their assessment at the Primary Health Centre.
- Idumesha and Aviara had a similar report as Irri and Ute-Okpu which reported the absence of malnourished children.
- The report for Orhoakpo was slightly different as the matron rated the nutritional status of the children in that community as fair. She mentioned there have been cases of malnourished children especially mothers who have twins.
- The matrons in all the communities were unanimous in their opinion that the most common illness among the children was malaria.
- The matron at Irri also added that there was an increasing in stooling among the children during the dry seasons as a result of unclean source of water in the community.
- Typhoid fever was also mentioned as a common illness among the children in Okpara Inland.

##### ***Antenatal and Postnatal Care***

- The matrons at Ute-Okpu, Aviara and Idumesha rated antenatal attendance as very low, stating how most mothers would rather go to their business locations or farms on clinic days if there was a clash in dates/schedules.
- At Irri, Okpara Inland and Orhoakpo antenatal attendance was rated good.

- Matrons in all six communities reported that they provided information on child survival strategies to mothers during antenatal and postnatal clinics.
- At Irri, the matron reported that she used the training manual provided and leaflets that provided extra information on a topic.
- The matrons felt pregnant and lactating women listened more to their peers and mothers than information obtained at the health centre.
- All six Primary Health Centres carried out immunization for children and agreed that the turnout was usually good.

### ***Practice of Child Survival Strategies***

- The matrons in all six communities shared their concern about the low or nonexistence of exclusive breastfeeding amongst mothers.
- They suspected that women did not provide adequate complementary feeding, especially when they are not breastfeeding exclusively.
- At Irri, the matron shared that as the last postnatal clinic, only 7 out of over 100 women were exclusively breastfeeding their babies.
- At Ute-Okpu the matron lamented that while mothers did not breastfeed exclusively, they also misused formula food by over diluting it so can last for as long as possible.
- At Irri, growth monitoring was reported to have been done during every postnatal visit. The matron mentioned ensuring every child's growth chart was checked and mothers advised on how to ensure their children stayed healthy.
- The matron at Ute-Okpu complained that the workload was cumbersome and so growth monitoring had not been prioritized in terms of interpreting the growth chart to mothers individually.
- Other communities reported weighing the baby, but not much attention was paid to the growth chart due to a shortfall in available

### ***Challenges Facing Practice of Child Survival Strategies***

- The challenge of teenage pregnancy was a thing of concern in all six communities but was more rampant in Ute-Okpu.
- This is linked to low level of education as teenage girls get pregnant and have to drop out of school before completing their secondary education.

- At Irri, the matron shared that most of the mothers preferred Traditional Birth Attendants (TBAs). In her words, *“Most of them believe in traditional medicine. We have a lot of TBAs here. So, most of them don’t come here for delivery. Most of them will book here; on the day of delivery we will not see them. Before you know it, we hear that they have put to birth. They will tell you my sister is a nurse, or the lady in my compound is a nurse; so many of them do not give birth in the clinic. Just a few of them come here for delivery. Some of them go to the Central Hospital if the labour pain starts at night and they cannot access this place, they go there. For them, anybody that has access to drugs is a nurse or doctor.”*
- At Ute-Okpu, the matron believed that the use of TBAs was a result of the non-functional state of the PHC before she was posted to the community. This in her opinion had made community dwellers lose trust for the centre because they were not sure of meeting anyone if they sought medical attention.
- The challenge of TBAs was also reported in Aviara, Idumesha and Orhoakpo, but at a mild level when compared to Ute-Okpu and Irri
- The challenge of self-medication was also highlighted in Ute-Okpu and Idumesha. The matrons reported that pregnant women walk to a local medicine store popularly known as Chemist to purchase drugs without a doctor’s prescription.
- A major challenge highlighted concerning the immunization exercise was that the Primary Health Centres did not have cooling systems and electricity to preserve the vaccines, so the matron has to go to a central location where the vaccines are stored before returning to administer to the children.
- A myth which seemed to be popular amongst mothers in Aviara and Irri (Isoko South LGA) was that a pregnant woman should not eat egg, take any beverage, pap or malt drink so that her baby will not be too big. This had resulted in cases of anemia amongst pregnant women in Isoko-South based on the matrons’ report.
- In Ute-Okpu, the matron reported that malaria was rampant because mothers do not use the mosquito treated nets given to them at the health centre. She attributed this behaviour to the lack of electricity in the community which makes it very uncomfortable to sleep under a net as it generates heat.
- The challenge of malaria in Ute-Okpu was also linked to the bushy environment where residents grow palm trees and plantain which are conducive for mosquitoes to inhabit.

### ***Suggested Solutions to Challenges Facing the Practice of Child Survival Strategies***

- Counseling on the importance of education was suggested by the matron at Ute-Okpu. In her own words, *“It is because they didn’t go to school and they do not have adequate education that is why you see them doing what they are doing. So, they need more counseling on the importance of education that is number one thing. Because what they just do now is when in SS1 or JSS3 they are already pregnant. So, what do they know about motherhood before they get pregnant? They are not prepared. They will give birth to somebody who will also get pregnant at that same age. So, you see that the community is packed full of illiterates that don’t know anything. So, the community needs more of education.”*
- To increase antenatal and postnatal attendance, the matrons put farming season and market days into consideration when scheduling antenatal and postnatal clinic days. The matron at Ute-Okpu also mentioned she was planning to start home visits so she could encourage mothers to start using the health centre.
- The matrons suggested that rural electrification should be made a priority by government so that mothers can use the mosquito treated nets provided them in a more conducive environment. This will also ensure that they can store vaccines at the health centre instead of having to travel long distances to access them on immunization days.
- Matrons believed that if the mothers are empowered economically they would be in a better position to take care of the nutritional health needs of their children. One of the matrons put it this way, *“Most of the women are unemployed, so they do not have money to buy drugs if they need to; those from polygamous homes are worst hit.”* It was suggested that the government provides financial support to help support women in business while farmers should be supported with fertilizer and other incentives. They also suggested that nutritional supplements be provided at the community level to help malnourished children.

Objective Three: To investigate the Knowledge, Attitude and Practice (KAP) of child survival strategies amongst mothers with children 0-24 months in Delta State

#### **4.3 Knowledge, Attitude and Practice of Intervention and Control Groups at Baseline**

At baseline the mean knowledge of the control group ( $18.1 \pm 7.2$ ) was similar to that of the intervention group ( $18.31 \pm 9.5$ ). 41.0% of mothers in the intervention group had poor, while 35.6% of mothers in the control group had poor knowledge. This was similar for attitude and practice Means $\pm$ SD at baseline. Mothers in the intervention (96.4%) and control (97.0%) groups had positive attitude towards child survival strategies. The outcome of the independent sample t-test showed that there was no significant mean difference among the control and intervention groups at baseline; Knowledge ( $t = -0.611$ ,  $p = 0.542$ ), Attitude ( $t = -0.402$ ,  $p = 0.688$ ) and Practice ( $t = -0.616$ ,  $p = 0.539$ ). There was no difference in the knowledge, attitude and practice among the control and intervention groups.

**Table 4.9 Mean Knowledge, Attitude and Practice of Intervention and Control Groups at Baseline**

<b>Variables</b>		<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>
<b>Knowledge</b>	Control	101	18.18	7.725	.769
	Intervention	139	18.27	9.495	.805
<b>Attitude</b>	Control	101	17.88	4.997	.497
	Intervention	139	18.33	5.869	.498
<b>Practice</b>	Control	101	10.58	3.389	.337
	Intervention	139	8.6642	2.95822	.25555

**Table 4.10 Independent Samples Test of Knowledge, Attitude and Practice of Intervention and Control Group at Baseline**

<b>Variables</b>		<b>F</b>	<b>Sig.</b>	<b>t</b>	<b>df</b>	<b>Sig.(2-tailed)</b>	<b>Mean difference</b>	<b>St. Error Difference</b>
<b>Knowledge</b>	Equal variances assumed	4.842	.029	-.083	238	.934	-.095	1.150
	Equal variances not assumed			-.085	234.922	.932	-.095	1.113
<b>Attitude</b>	Equal variances assumed	3.953	.048	-.623	238	.534	-.450	.722
	Equal variances not assumed			-.639	232.020	.523	-.450	.704
<b>Practice</b>	Equal variances assumed	9.216	.003	-1.295	238	.196	-.509	.393
	Equal variances not assumed			-1.250	184.847	.213	-.509	.407

**Table 4.11: Proportion of Knowledge, Attitude and Practice Scores in Intervention and Control Groups at Baseline**

<b>Variable</b>	<b>Intervention n (%)</b>	<b>Control n (%)</b>
Poor Knowledge Class (0-14)	57 (41.0)	36 (35.6)
Fair Knowledge Class (15-20)	38 (27.3)	31 (30.7)
Good Knowledge Class (21+)	44 (31.7)	34 (33.7)
Negative Attitude (0-7)	5 (3.6)	3 (3.0)
Positive Attitude (8-27)	134 (96.4)	98 (97.0)
Poor Practice (0-5)	19 (14.2)	5 (5.0)
Fair Practice (6-10)	75 (56.0)	44 (43.6)
Good Practice (11+)	40 (29.9)	52 (51.5)



#### **4.3.1 Knowledge, Attitude and Practice of Intervention and Control Groups at Endline**

The mean knowledge of the intervention group ( $25.7 \pm 8.7$ ) was higher than that of the control group ( $11.9 \pm 7.9$ ) at endline. More (74.0%) mothers in the intervention group had good knowledge score compared to 15.5% in the control group at endline. The t-test statistical analysis showed a significant difference between the knowledge of endline control and intervention groups ( $t = -12.370$ ,  $p < 0.05$ ). The mean attitude of the intervention group ( $16.6 \pm 4.5$ ) was slightly higher than that of the control group ( $15.8 \pm 5.1$ ) at endline. The Attitude of respondents showed no significant difference among the groups ( $t = -1.294$ ,  $p > 0.05$ ). The Practice of respondents was also examined and observed to be significantly different among the groups ( $t = -3.690$ ,  $p < 0.05$ ).

**Table 4.12: Mean Knowledge, Attitude and Practice of Intervention and Control Groups at Endline**

<b>Variables</b>		<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>
<b>Knowledge</b>	Control	97	11.8660	7.94333	0.80652
	Intervention	131	25.6947	8.86036	0.77413
<b>Attitude</b>	Control	97	15.7835	5.08926	0.51674
	Intervention	131	16.6260	4.52911	0.39571
<b>Practice</b>	Control	100	7.3800	2.12146	0.21215
	Intervention	139	11.09	2.697	0.229

**Table 4.13 Independent Samples Test for Endline KAP between Intervention and Control**

<b>Variables</b>		<b>F</b>	<b>Sig.</b>	<b>t</b>	<b>df</b>	<b>Sig.(2-tailed)</b>	<b>Mean difference</b>	<b>St. Error Difference</b>
<b>Knowledge</b>	Equal variances assumed	0.498	0.481	-12.170	226	0.000	-13.82868	1.13630
	Equal variances not assumed			-12.370	217.834	0.000	-13.82868	1.11793
<b>Attitude</b>	Equal variances assumed	4.569	0.034	-1.317	226	0.189	-0.84245	0.63963
	Equal variances not assumed			-1.294	192.677	0.197	-0.84245	0.65085
<b>Practice</b>	Equal variances assumed	6.972	0.009	-3.690	232	0.000	-1.28418	0.34806
	Equal variances assumed			-3.866	231.668	0.000	-1.28418	0.33213

**Table 4.14 Proportion of Knowledge, Attitude and Practice Scores in Intervention and Control Groups at Endline**

<b>Variable</b>	<b>Intervention n (%)</b>	<b>Control n (%)</b>
Poor Knowledge Class (0-14)	12 (9.2)	63 (64.9)
Fair Knowledge Class (15-20)	22 (16.8)	19 (19.6)
Good Knowledge Class (21+)	97 (74.0)	15 (15.5)
Negative Attitude (0-7)	6 (4.6)	6 (6.2)
Positive Attitude (8-27)	125 (95.4)	91 (93.8)
Poor Practice (0-6)	4 (2.9)	23 (23.0)
Fair Practice (6-10)	42 (30.2)	72 (72.0)
Good Practice (11+)	93 (66.9)	5 (5.0)

#### **4.3.2 Knowledge of Mothers on Antenatal and Postnatal Care by Variable at Baseline**

Baseline survey results showed that over a third (41%) of mothers in the intervention group did not know how to prevent malaria. When asked about the benefits of skin-to-skin touch with a baby immediately after delivery, almost half (47.5%) did not know the benefits, while 48.5% reported there were no benefits. More than half (56.1%) of mothers in the intervention group were of the opinion that antenatal clinic should begin three months into pregnancy. A higher proportion (83.7%) of mothers in control group believed the health centre was the best source of information on infant feeding, compared to 69.8% in the intervention group.

**Table 4.15: Knowledge of Mothers on Antenatal and Postnatal Care by Variable at Baseline**

Variables	Intervention n (%)	Control n (%)	Total n(%)
<b>What a woman should do when she finds out she is pregnant</b>			
Nothing	29 (20.9)	9 (8.9)	38 (15.8)
Start antenatal	100 (71.9)	87 (86.1)	187(77.9)
Eat different foods	10 (7.2)	5 (5.0)	15(6.3)
<b>A pregnant woman should eat more food</b>			
No	38 (27.3)	26 (25.7)	64(26.7)
Yes	101 (72.7)	75 (74.3)	176(73.3)
<b>The danger of malaria during pregnancy</b>			
Do not know	40 (28.8)	30 (29.7)	70(29.2)
Causes a woman to have a low weight baby	93 (66.9)	67 (66.3)	160(66.7)
Makes pregnant woman have less blood	5 (3.6)	4 (4.0)	9(3.8)
Does not have any effect	1 (0.7)	0 (0)	1(0.4)
<b>How Malaria should be prevented</b>			
Do not know	57 (41.0)	28 (27.7)	85(35.4)
Sleep under insecticide treated nets	70 (50.4)	62 (61.4)	132(55.0)
Maintain clean environment	10 (7.2)	9 (8.9)	19(7.9)
Go to the clinic regularly	2 (1.4)	2 (2.0)	4(1.7)
<b>Benefits of post-natal skin-to-skin contact</b>			
Do not know	66 (47.5)	39 (38.6)	105(43.8)
No benefit	67 (48.2)	58 (57.4)	125(52.1)
Helps baby keep warm	4 (2.9)	1 (1.0)	5(2.1)
Encourages early breastfeeding	2 (1.4)	3 (3.0)	5(2.1)

**Table 4.15: Knowledge of Mothers on Antenatal and Postnatal Care by Variable at Baseline continued**

Variables	Intervention n (%)	Control n (%)	Total n(%)
<b>How early a pregnant woman should attend antenatal clinic</b>			
Do not know	34 (24.5)	31 (30.7)	65(27.1)
>3 months	78 (56.1)	37 (36.6)	115(47.9)
2-3 months	17 (12.2)	26 (25.7)	43(17.9)
1 month	10 (7.2)	7 (6.9)	17(7.1)
<b>Source of information on infant feeding</b>			
Do not know	5 (3.6)	24 (23.8)	29(12.1)
Health centre	126 (90.6)	77 (76.2)	203(84.6)
Health worker	1 (0.7)	0 (0)	1(0.4)
Sibling	2 (1.4)	0 (0)	2(0.8)
Sibling-inlaw	1 (0.7)	0 (0)	1(0.4)
Mother	4 (2.9)	0 (0)	4(1.7)

### **4.3.3 Knowledge of Mothers on Recommended Breastfeeding Practice by Variable at Baseline**

The knowledge of mothers on recommended breastfeeding practices was quite poor based on their response to baseline questions. Majority (89.9%) of mothers in intervention group did not know the benefits of colostrum, while 93.0% in the control group also did not have this information. Almost half (47.5%) of mothers in intervention group reported they had not heard of exclusive breastfeeding; this was not so different from the control group (42.6%).

When asked the meaning of exclusive breastfeeding, two thirds (74.1%) of mothers in the intervention group did not know the correct meaning, while 81.2% of mothers in the control group also did not have this knowledge. 46.0% of mothers in the intervention group did not know breastfeeding should start immediately after birth.



**Table 4.16: Knowledge of Mothers on Recommended Breastfeeding Practice by Variable at Baseline**

Variables	Intervention n (%)	Control n (%)	Total n(%)
<b>Benefits of colostrum</b>			
Do not know	62 (44.6)	42 (41.5)	104(43.3)
No benefits	63 (45.3)	52 (51.5)	115(47.9)
Provides a protective lining of the gut	10 (7.2)	4 (4.0)	14(5.8)
Helps the gut develop	4 (2.9)	3 (3.0)	7(2.9)
<b>Heard of Exclusive Breastfeeding</b>			
No	66 (47.5)	43 (42.6)	109(45.4)
Yes	73 (52.5)	58 (57.4)	131(54.6)
<b>Exclusive breastfeeding means</b>			
Do not know	103 (74.1)	82 (81.2)	185(77.1)
Feeding baby with only breast milk	36 (25.9)	19 (18.8)	55(22.9)
<b>Number of times a baby should be breastfed in a day</b>			
Do not know	25 (18.0)	24 (23.8)	49(20.4)
On demand	114 (82.0)	77 (76.2)	191(79.6)
<b>After birth Breast milk should be introduced</b>			
Do not know	64 (46.0)	18 (17.8)	82(34..2)
Two days later	75 (54.0)	83 (82.2)	158(65.8)

**Table 4.16: Knowledge of Mothers on Recommended Breastfeeding Practice by Variable at Baseline continued**

Variables	Intervention n (%)	Control n (%)	Total n(%)
<b>Benefits of Breastfeeding to the mother</b>			
Do not know	64 (46.0)	57 (56.4)	121(50.4)
Reduces bleeding	73 (52.5)	39 (38.6)	112(46.7)
Reduces weight	2 (1.4)	1 (1.0)	3(1.3)
Helps the womb return...	0 (0)	3 (3.0)	3(1.3)
Reduces chances of ovarian & breast cancer	0 (0)	1 (1.0)	1(0.4)
<b>Advantages of EBF</b>			
Do not know	52 (37.4)	33 (32.7)	85(35.4)
Protects baby's health	72 (51.8)	55 (54.5)	127(52.9)
Better bonding	8 (5.8)	6 (5.9)	14(5.8)
Perfect food for baby	6 (4.3)	6 (5.9)	12(5.0)
Keeps babies happy	1 (0.7)	1 (1.0)	2(0.8)

#### **4.3.4 Knowledge of Mothers on Appropriate Complementary Feeding Practice by Variable at Baseline**

On complementary feeding practice, baseline results showed that more than half (53.2%) of mothers in intervention group reported that other foods can be introduced to a baby immediately after birth. A third (25.9%) of mothers said semi-solid food can be given to infant one month after birth. This indicates the poor knowledge of the mothers on the right time to introduce complementary food.

**Table 4.17: Knowledge of Mothers on Appropriate Complementary Feeding Practice by Variable at Baseline**

Variables	Intervention n (%)	Control n (%)	Total n(%)
<b>Other foods could be introduced</b>			
Do not know	65 (46.8)	37 (36.6)	102(42.5)
Immediately after birth	74 (53.2)	64 (63.4)	138(57.5)
Total	139 (100)	101 (100)	240(100)
<b>Semi-solid food can be introduced</b>			
1 month after birth	36 (25.9)	24 (23.8)	60(25.0)
6 months after birth	103 (74.1)	77 (76.2)	180(75.0)
Total	139 (100)	101 (100)	240(100)
<b>Item used in feeding a baby complementary food</b>			
Feeding bottle	101 (72.7)	84 (83.2)	185(77.1)
Cup/Plate	38 (27.3)	17 (16.8)	55(22.9)
Total	139 (100)	101 (100)	240(100)
<b>Maintain a hygienic environment by</b>			
Incorrect response	59 (42.4)	40 (39.6)	99(41.3)
Correct response	80 (57.6)	61 (60.4)	141(58.8)
Total	139 (100)	101 (100)	240(100)

#### **4.3.5 Knowledge of Mothers on Growth Monitoring by Variable at Baseline**

About two thirds (71.3%) of mothers in the control group and 64.7% in intervention group reported they had not heard of growth monitoring. Majority (94.1%) of mothers in the control group and 80.6% in intervention group did not know the meaning of growth monitoring. While 83.2% of mothers in control group and 79.1% in intervention group did not know how frequently growth monitoring should be carried out for their baby.

**Table 4.18: Knowledge of Mothers on Growth Monitoring by Variable at Baseline**

<b>Variables</b>	<b>Intervention n (%)</b>	<b>Control n (%)</b>	<b>Total n(%)</b>
<b>Heard of Growth monitoring</b>			
No	90 (64.7)	72 (71.3)	162(67.5)
Yes	49 (35.3)	29 (28.7)	78(32.5)
<b>Meaning of Growth monitoring</b>			
Do not know	112 (80.6)	95 (94.1)	207(86.3)
Taking baby to be weighed by Health Worker regularly	24 (17.3)	6 (5.9)	30(12.5)
Looking if a baby is growing	3 (2.2)	0 (0)	3(1.3)
<b>Number of times a baby should be taken for Growth Monitoring</b>			
Do not know	110 (79.1)	84 (83.2)	194(80.8)
Everyday	29 (20.9)	17 (16.8)	46(19.2)
<b>Benefits of growth monitoring</b>			
Do not know	99 (71.2)	77 (76.2)	176(73.3)
There are no benefits	32 (23.0)	22 (21.8)	54(22.5)
Know how the baby is growing	8 (5.8)	2 (2.0)	10(4.2)

#### **4.3.6 Knowledge of Mothers on Oral Rehydration Therapy by Variable at Baseline**

Mothers' knowledge of Oral Rehydration Therapy (ORT) was very poor at baseline. Less than half (30.2%) had heard of ORT in intervention group, while more than half (72.7%) did not know the benefits of ORT. Most (72.7%) of the mothers in the intervention group did not know when ORT should be administered; while 75.5% did not know the ingredients used to make ORT. knowledge of the benefits and use of ORT were poor among the mothers.

**Table 4.19: Knowledge of Mothers on Oral Rehydration Therapy by Variable at Baseline**

<b>Variables</b>	<b>Intervention n (%)</b>	<b>Control n (%)</b>	<b>Total n(%)</b>
<b>Heard of ORT</b>			
No	97 (69.8)	77 (76.2)	174(72.5)
Yes	42 (30.2)	24 (23.8)	66(27.5)
<b>Benefit of ORT</b>			
Do not know	101 (72.7)	77 (76.2)	178(74.2)
No benefits	38 (27.3)	24 (23.8)	62(25.8)
<b>A child should be given ORT</b>			
Do not know	101 (72.7)	82 (81.2)	183(76.3)
When there is no food	37 (26.6)	19 (18.8)	56(23.3)
When a child has diarrhea	1 (0.7)	0 (0)	1(0.4)
<b>Ingredients used in making ORT</b>			
Do not know	105 (75.5)	83 (82.2)	188(78.3)
Salt, sugar, water	34 (24.5)	18 (17.8)	52(21.7)
<b>How ORT is made</b>			
Do not know	106 (76.3)	85 (84.2)	191(79.6)
Mix half teaspoon of salt with 8 flat teaspoons of sugar in 1litre of clean water	33 (23.7)	16 (15.8)	49(20.4)



#### **4.3.8 Knowledge of Mothers on Immunization by Variable at Baseline**

Most (83.5%) of mothers in intervention group and 87.1% in control group had heard about immunization previously. More than half (61.2%) of mothers in the intervention group did not know when the first immunization should be administered. Majority (84.2%) also did not know when TB and Polio vaccines are administered and 43.2% had no idea what immunization their babies had received.

**Table 4.20: Knowledge of Mothers on Immunization by Variable at Baseline**

<b>Variables</b>	<b>Intervention n (%)</b>	<b>Control n (%)</b>	<b>Total n(%)</b>
<b>Heard of immunization</b>			
No	23 (16.5)	13 (12.9)	36(15.0)
Yes	116 (83.5)	88 (87.1)	204(85.0)
<b>When a baby get the first immunization</b>			
Do not know	85 (61.2)	60 (59.4)	145(60.4)
Anytime the mother goes to clinic	52 (37.4)	41 (40.6)	93(38.8)
One month after birth	1 (0.7)	0 (0)	1(0.4)
Immediately after birth	1 (0.7)	0 (0)	1(0.4)
<b>When a baby get TB and Polio vaccines</b>			
Do not know	117 (84.2)	89 (88.1)	206(85.8)
One week after birth	22 (15.8)	12 (11.9)	34(14.2)
<b>Last immunization given to an infant</b>			
Do not know	105 (75.5)	68 (67.3)	173(72.1)
Meningitis, typhoid fever	34 (34.5)	33 (32.7)	67(27.9)
<b>Immunization given to (index child)</b>			
Do not know	60 (43.2)	33 (32.7)	93(38.8)
BCG, OPVI, HEPBO	74 (53.2)	56 (55.4)	130(54.2)
OPVI,Pentavalent 1, PCV, Rotavirus	5 (3.6)	12 (11.9)	17(7.1)

#### **4.3.9 Knowledge of Mothers on Food Sources of Micronutrients by Variables at Baseline**

Only 33.8% of mothers in the intervention group knew the food sources of vitamin A, while majority (87.8%) did not know the food sources of iodine. Only a few (10.1%) of mothers in intervention group knew the food sources of zinc at baseline.

**Table 4.21: Knowledge of Mothers on Food Sources of Micronutrients by Variables at Baseline**

Variables	Intervention n (%)	Control n (%)	Total n(%)
<b>Food sources of Vit. A</b>			
Incorrect response	92 (66.2)	73 (72.3)	165(68.8)
Correct response	47 (33.8)	28 (27.7)	75(31.3)
<b>Food source of Iron</b>			
Incorrect response	90 (64.7)	78 (77.2)	168(70.0)
Correct response	49 (35.3)	23 (22.8)	72(30.0)
<b>Food source of Iodine</b>			
Incorrect response	122 (87.8)	98 (96.0)	220(91.7)
Correct response	12 (12.2)	4 (4.0)	20(8.3)
<b>Food source of Zinc</b>			
Incorrect response	125 (89.9)	72 971.3)	222(92.5)
Correct response	14 (10.1)	29 (28.7)	18(7.5)

#### **4.3.10 Knowledge of Mothers on Family Planning Guidelines by Variables at Baseline**

Mothers' knowledge of family planning guidelines was average at baseline. More than a third (38.1%) of mothers in the intervention group did not know there were age restrictions for getting pregnant as part of the family planning guidelines. Although more than half (63.3%) of mothers knew it was not safe to get pregnant before 18 years of age, 33.8% did not know the recommended birth spacing period; more than half (65.5%) of the mothers reported the recommended spacing period as one year. Knowledge of the mothers on family planning in the two groups was not significantly different except in recommended birth spacing.

**Table 4.22: Knowledge of Mothers on Family Planning Guidelines by Variables at Baseline**

<b>Variables</b>	<b>Intervention n (%)</b>	<b>Control n (%)</b>	<b>Total n(%)</b>
<b>Age restriction to getting pregnant</b>			
Do not know	53 (38.1)	39 (38.6)	92(38.3)
No	1 (0.7)	1 (1.0)	2(0.8)
Yes	85 (61.2)	61 (60.4)	146(60.8)
<b>Age NOT safe to get pregnant</b>			
Do not Know	51 (36.7)	51 (50.5)	102(42.5)
Before 18 years	88 (63.3)	50 (49.5)	138(57.5)
<b>Recommended birth spacing</b>			
Do not know	47 (33.8)	24 (23.8)	71(29.6)
1 year	91 (65.5)	76 (75.2)	167(69.6)
2 years	1 (0.7)	1 (1.0)	2(0.8)

#### **4.3.11 Attitude of Mothers towards Antenatal and Postnatal Care at Baseline**

At baseline mothers' showed mostly positive attitude towards child survival strategies. Majority (95%) of mothers in intervention group agreed that a pregnant woman must attend antenatal clinic regularly. A similar proportion of mothers in intervention (85.6%) and control (83.2%) groups agreed that women should take advantage of the health center in their community. More than half (52.5%) of mothers in intervention group were of the opinion that a woman can get pregnant as often as she wants.

**Table 4.23: Attitude of Mothers towards Antenatal and Postnatal Care at Baseline**

<b>Variables</b>	<b>Intervention n (%)</b>	<b>Control n (%)</b>
<b>A pregnant woman should eat healthy and nutritious foods</b>		
Disagree	6 (4.3)	8 (7.9)
Agree	133 (95.7)	93 (92.1)
<b>Women must attend antenatal regularly when pregnant</b>		
Disagree	7 (5.0)	7 (6.9)
Agree	132 (95.0)	94 (93.1)
<b>A pregnant woman can smoke</b>		
Agree	27 (19.4)	12 (11.9)
Disagree	112 (80.6)	89 (88.1)
<b>Pregnant women should engage in light exercise</b>		
Disagree	13 (9.4)	17 (16.8)
Agree	126 (90.6)	84 (83.2)
<b>Every pregnant woman should take advantage of the health center</b>		
Disagree	20 (14.4)	17 (16.8)
Agree	119 (85.6)	84 (83.2)
<b>A woman can get pregnant as often as she wants</b>		
Agree	73 (52.5)	44 (43.6)
Disagree	66 (47.5)	57 (56.4)



**Table 4.23: Attitude of Mothers towards Antenatal and Postnatal Care at Baseline continued**

<b>Variables</b>	<b>Intervention n (%)</b>	<b>Control n (%)</b>
<b>There should not be age restrictions to getting pregnant</b>		
Agree	70 (50.4)	47 (46.5)
Disagree	69 (49.6)	54 (53.5)
<b>Traditional care in pregnancy is more important than medical care</b>		
Agree	30 (21.6)	23 (22.8)
Disagree	109 (78.4)	78 (77.2)
<b>It is better to give birth with a TBA than a health centre</b>		
Agree	19 (13.7)	15 (14.9)
Disagree	120 (86.3)	86 (85.1)

#### **4.3.12 Attitude of Mothers towards Recommended Breastfeeding Practice at Baseline**

About two thirds (76.3%) of mothers in intervention and control (73.3%) groups agreed that colostrum is good for a baby's health. Most (90.1%) of mothers in control and 85.6% in intervention groups agreed that introducing a baby to breast milk immediately after birth had benefits. More than half (60.4%) of mothers in intervention group were of the opinion that a baby can be given water after two months.

**Table 4.24: Attitude of Mothers towards Recommended Breastfeeding Practice at Baseline**

<b>Variables</b>	<b>Intervention n (%)</b>	<b>Control n (%)</b>
<b>The first breast milk that is yellowish in colour is good for a baby's health</b>		
Disagree	33 (23.7)	27 (26.7)
Agree	106 (76.3)	74 (73.3)
<b>Introducing a baby to breast milk immediately after birth has benefits</b>		
Disagree	20 (14.4)	10 (9.9)
Agree	119 (85.6)	91 (90.1)
<b>A baby can be given water after 2 months</b>		
Agree	84 (60.4)	66 (65.3)
Disagree	55 (39.6)	35 (34.7)
<b>A baby can only be given water 6 months after birth</b>		
Disagree	59 (42.4)	40 (39.6)
Agree	80 (57.6)	61 (60.4)
<b>A baby should be breastfed on demand</b>		
Disagree	36 (25.9)	19 (18.8)
Agree	103 (74.1)	82 (81.2)

#### **4.3.13 Attitude of Mothers regarding Growth Monitoring at Baseline**

More than a third (38.1%) of mothers in the intervention and 37.6% in the control group disagreed that monitoring the growth of a baby is important. More than half (66.2%) of the mothers in intervention group agreed that a baby must be weighed once every month for the first one year; while 41.6% in the control group did not agree on this practice.

**Table 4.25: Attitude of Mothers regarding Growth Monitoring at Baseline**

<b>Variables</b>	<b>Intervention n (%)</b>	<b>Control n (%)</b>
<b>Monitoring the growth of a baby is very important</b>		
Disagree	53 (38.1)	38 (37.6)
Agree	86 (61.9)	63 (62.4)
Total	139 (100)	101 (100)
<b>Growth monitoring can help discover if a baby has hidden illnesses</b>		
Disagree	57 (41.0)	44 (43.6)
Agree	82 (59.0)	57 (56.4)
Total	139 (100)	101 (100)
<b>It is important that a mother takes her baby for growth monitoring</b>		
Disagree	51 (36.7)	41 (40.6)
Agree	88 (63.3)	59 (58.4)
Total	139 (100)	101 (100)
<b>A baby must be weighed once every month for the first one year</b>		
Disagree	47 (33.8)	42 (41.6)
Agree	92 (66.2)	59 (58.4)
Total	139 (100)	101 (100)

#### **4.3.14 Attitude of Mothers regarding Oral Rehydration Therapy at Baseline**

More than half (53.2%) of mothers in the intervention group disagreed that ORT can save the life of a baby suffering from diarrhea. Two thirds (78.2%) of mothers in control group were of the opinion that there was no particular measurement for making ORT. More than half (54.7%) of mothers in the intervention and 69.3% in control groups believed ORT can only be made by health workers.

**Table 4.26: Attitude of Mothers regarding Oral Rehydration Therapy at Baseline**

Variables	Intervention n (%)	Control n (%)
<b>ORT can save the life of a baby suffering from diarrhea</b>		
Disagree	74 (53.2)	60 (59.4)
Agree	65 (46.8)	41 (40.6)
Total	139 (100)	101 (100)
<b>There is no particular measurement for making ORT</b>		
Agree	82 (59.0)	79 (78.2)
Disagree	57 (41.0)	22 (21.8)
Total	139 (100)	101 (100)
<b>ORT does not help rehydrate a baby with diarrhea</b>		
Agree	73 (52.5)	67 (66.3)
Disagree	66 (47.5)	34 (33.7)
Total	139 (100)	101 (100)
<b>ORT can only be made by health workers</b>		
Agree	76 (54.7)	70 (69.3)
Disagree	63 (45.3)	31 (30.7)
Total	139 (100)	101 (100)

#### **4.3.15 Attitude of Mothers regarding Immunization at Baseline**

Mothers' attitude regarding immunization was quite positive from baseline results. Over two thirds (81.3%) of mothers in intervention and control (84.2%) groups agreed that immunization of babies should not be taken for granted. Majority (89.9%) of mothers in the intervention group agreed that immunization protects from infections and diseases; however, 43.2% were of the opinion that it should not be compulsory. More than half (52.5%) of mothers in intervention and control (54.5%) groups believed that a baby's father must approve before the baby can be immunized.



**Table 4.21: Attitude of Mothers regarding Immunization at Baseline**

<b>Variables</b>	<b>Intervention n (%)</b>	<b>Control n (%)</b>
<b>The immunization of babies should not be taken for granted</b>		
Disagree	26 (18.7)	16 (15.8)
Agree	113 (81.3)	85 (84.2)
<b>Immunization protects from infections and diseases</b>		
Disagree	14 (10.1)	13 (12.9)
Agree	125 (89.9)	88 (87.1)
<b>Immunization should not be compulsory</b>		
Agree	60 (43.2)	35 (34.7)
Disagree	79 (56.8)	66 (65.3)
<b>A child who is immunized is not at risk of getting certain viral infections</b>		
Disagree	22 (15.8)	9 (8.9)
Agree	117 (84.2)	92 (91.1)
<b>A baby's father must approve immunization before the baby can be immunized</b>		
Agree	73 (52.5)	55 (54.5)
Disagree	66 (47.5)	46 (45.5)

#### **4.3.16 Practice of Mothers regarding Antenatal and Postnatal Care by Variables at Baseline**

Although more than half (59.7%) of mothers in the intervention group recommended eating healthy as a way to take care of a woman when pregnant, 33.9% said they did not know what should be done. Majority (90.6%) of mothers in the intervention group reported they relied on a hospital for antenatal care. Most (87.1%) of mothers in intervention and 82.2% in control group reported they were responsible for making decisions on how to feed their babies. Although majority (86.3%) of mothers in the intervention group reported they delivered in a clinic or hospital, 14.7% said they gave birth at home. Most (76.3%) mothers in the intervention group had visited the health centre up to four times for postnatal care. More than half (60.5%) of mothers in intervention group had their first postnatal visit when their baby was two weeks old.

**Table 4.28: Practice of Mothers regarding Antenatal and Postnatal Care by Variables at Baseline**

Variables	Intervention n (%)	Control n (%)	Total n(%)
<b>How a pregnant woman should take care of herself</b>			
Do not know	47 (33.9)	35 (34.7)	82(34.2)
Nothing	2 (1.4)	3 (3.0)	5(2.1)
Eat healthy meals	83 (59.7)	56 (55.4)	139(57.9)
Start taking folic acid	7 (5.0)	7 (6.9)	14(5.8)
<b>Other antenatal options asides health facility</b>			
Not applicable	129 (92.8)	81 (80.2)	210(87.5)
TBA	2 (1.4)	2 (2.0)	4(1.7)
Community Health Worker	6 (4.4)	17 (16.8)	23(9.6)
Mother/GrandMa	2 (1.4)	1 (1.0)	3(1.3)
<b>Mainly go to obtained antenatal care at</b>			
No antenatal visit	11 (7.9)	10 (9.9)	22(9.2)
Hospital	126 (90.6)	89 (88.1)	215(89.6)
Clinic	2 (1.4)	2 (2.0)	4(1.7)
<b>Makes decision on how to feed your baby</b>			
Nobody	4 (2.9)	18 (17.8)	22(9.2)
Self	121 (87.1)	83 (82.2)	204(85.0)
Spouse	1 (0.7)	0 (0)	1(0.4)
Grandmother of baby	10 (7.2)	0 (0)	10(4.2)
Health worker	2 (1.4)	0 (0)	2(0.8)
Self and spouse	1 (0.7)	0 (0)	2(0.4)

**Table 4.28: Practice of Mothers regarding Antenatal and Postnatal Care by Variables at Baseline continued**

Variables	Intervention n (%)	Control n (%)	Total n(%)
<b>Place of delivery</b>			
Home	19 (14.7)	22 (21.8)	41(17.1)
Clinic/Hospital	120 (86.3)	79 (78.2)	199(82.9)
<b>Number of ANC visits when pregnant</b>			
Do not know/Cannot remember	126 (90.6)	83 (82.2)	209(87.1)
1-5	7 (5.0)	15 (15.0)	22 (9.2)
6-10	5 (3.6)	2 (2.0)	7(3,0)
11-15	1 (0.7)	1 (1.0)	2(0.8)
<b>Number of visits to health facility for postnatal care</b>			
1 – 4 times	106 (76.3)	65 (64.4)	171(71.3)
>4 – 8 times	33 (23.7)	36 (35.6)	69(28.8)
<b>How old baby was at first postnatal visit</b>			
0 – 2 weeks	84 (60.5)	7 (6.9)	91(37.9)
>2 – 4 weeks	22 (15.8)	6 (6.0)	28(11.7)
>4 – 6 weeks	6 (4.3)	4 (4.0)	10(4.2)
>6 – 8 weeks	5 (3.6)	19 (18.8)	24(10.0)
>8 weeks	22(15.8)	65 (64.3)	87(36.3)
<b>Number of months of pregnancy by first ANC visit</b>			
Cannot remember	13 (9.4)	9 (8.9)	22(9.2)
>3months	110 (79.1)	49 (48.5)	159(66.3)

#### **4.3.17 Practice of Mothers regarding Recommended Breastfeeding Strategies at Baseline**

Most (85.6%) of mothers in the intervention group and control (80.2%) group reported that they were still breastfeeding; 63.3% of mothers in the intervention group reported they were given their baby less than an hour after birth to start breastfeeding. Majority (80.6%) of mothers in intervention and control (70.3%) groups responded positively to breastfeeding their child, although almost two thirds (68.3%) of mothers in intervention group intended to breastfeed for less than 24 months.

**Table 4.29: Practice of Mothers regarding Recommended Breastfeeding Strategies by Variables at Baseline**

Variables	Intervention n (%)	Control n (%)	Total n(%)
<b>Still breastfeeding (index child)</b>			
No	20 (14.4)	20 (19.8)	40(16.7)
Yes	119 (85.6)	81 (80.2)	200(83.3)
<b>Frequency of breastfeeding or giving of other liquids to (index child) when ill</b>			
Less than usual	66 (47.4)	44 (43.5)	110(45.8)
More than usual	49 (35.3)	52 (51.5)	101(42.1)
Same as usual	24 (17.3)	5 (5.0)	29(12.1)
<b>Period after the birth of (index child) before breastfeeding</b>			
Do not remember	51 (36.7)	70 (69.3)	121(50.4)
Immediately/less than an hour	88 (63.3)	31 (30.7)	119(49.6)
<b>Reasons for not initiating breastfeeding immediately</b>			
Not Applicable	122 (87.8)	50 (49.5)	172(71.7)
Mother ill	4 (2.9)	3 (3.0)	7(2.9)
Infant ill	1 (0.7)	0 (0)	1(0.4)
Infant premature	0 (0)	1 (1.0)	1(0.4)
Cultural reasons	2 (1.4)	3 (3.0)	5(2.1)
Cleaning up after birth	6 (4.4)	8 (7.9)	14(5.8)
Infant not brought immediately	0 (0)	31 (30.7)	31(12.9)
Mother's decision	2 (1.4)	3 (3.0)	5(2.1)
Insufficient breast milk	2 (1.4)	2 (2.0)	4(1.7)

**Table 4.29: Practice of Mothers regarding Recommended Breastfeeding Strategies by Variables at Baseline continued**

Variables	Intervention n (%)	Control n (%)	Total n(%)
<b>Alternate breasts when breastfeeding</b>			
No	88 (63.3)	70 (69.3)	158(65.8)
Yes	51 (36.7)	31 (30.7)	82(34.2)
<b>Ever breast fed (index child)</b>			
No	27 (19.4)	30 (29.7)	57(23.8)
Yes	112 (80.6)	71 (70.3)	183(76.3)
Total	139 (100)	101 (100)	240(100)
<b>Age intended to stop breastfeeding (index child)</b>			
No idea	23 (16.6)	31 (30.7)	54(22.5)
Less than 24 months	95 (68.3)	70 (69.3)	165(68.8)
24 months	21 (15.1)	0 (0)	21(8.8)
Total	139 (100)	101 (100)	240(100)

#### **4.3.18 Practice of Mothers regarding Appropriate Complementary Feeding Strategies and Growth Monitoring by Variables at Baseline**

About one tenth (10.1%) of mothers in the intervention group used feeding bottles to feed baby with cow milk, infant formula or water; none of the mothers used cup or plate. Most (72.6%) mothers in the intervention group reported they have never taken their child for growth monitoring; only 4.3% had taken their baby for growth monitoring a month ago. Less than a quarter (22.3%) of the mothers in the intervention group reported growth monitoring was done on a monthly basis.



**Table 4.30: Practice of Mothers regarding Appropriate Complementary Feeding Strategies and Growth Monitoring by Variable at Baseline**

Variables	Intervention n (%)	Control n (%)	Total n(%)
<b>Utensil mostly used for drinking milk and other fluid</b>			
Do not know	125 (89.9)	97 (96.0)	223(92.9)
Feeding bottle	14 (10.1)	4 (4.0)	18(7.5)
Cup/plate	0 (0)	0 (0.0)	0(0)
Total	139 (100)	101 (100)	240(100)
<b>Last time index child was taken for growth monitoring</b>			
Never	101 (72.6)	73 (72.3)	174(72.5)
Last month	25 (18.0)	21 (20.8)	46(19.2)
2 months ago	3 (2.2)	2 (2.0)	5(2.1)
< 1 month ago	6 (4.3)	2 (2.0)	8(3.3)
3-5 months ago	2 (1.4)	2 (2.0)	4(1.7)
>5 months	2 (1.4)	1 (1.0)	3(1.3)
<b>Frequency of Growth Monitoring</b>			
Never	105 (75.5)	79 (78.2)	184(76.7)
Monthly	31 (22.3)	17 (16.8)	48(20.0)
Not often	2 (1.4)	5 (5.0)	7(2.9)
Every 3 months	1 (0.7)	0 (0)	1(0.4)

#### **4.3.19 Knowledge of Mothers on Antenatal and Postnatal Care in Intervention and Control Groups at Endline**

On what a woman should do when she finds out she is pregnant, more (83.5%) mothers in the intervention group knew she should start antenatal clinic, while 54.5% of the control group reported same. About three quarters (84.1%) of the mothers in the intervention group reported that a pregnant woman should eat more food, as against 59.4% in the control group. Majority (79.1%) of mothers in the intervention group knew the dangers of malaria during pregnancy; fewer (24.8%) mothers in the control group had this knowledge.

In their response to how malaria could be prevented, more (78.4%) mothers in the intervention group knew the correct steps as against 50.5% in the control group. More than half (64.0%) of the mothers in the intervention group knew the benefits of skin-to-skin contact with the baby after birth, while no mother in the control group had this knowledge.

**Table 4.31: Knowledge of Mothers on Antenatal and Postnatal Care in Intervention and Control Groups at Endline**

Variables	Intervention n (%)	Control n (%)	Total n(%)
<b>What a woman should do when she finds out she is pregnant</b>			
Nothing	14 (10.1)	45 (44.6)	59(24.6)
Start antenatal	116 (83.5)	55 (54.5)	171(71.3)
Eat different foods	9 (6.5)	1 (1.0)	10(4.2)
<b>A pregnant woman should eat more food</b>			
No	23 (15.9)	41 (40.6)	64(26.7)
Yes	116 (84.1)	60 (59.4)	176(73.3)
<b>Danger of malaria during pregnancy</b>			
Do not know	29 (20.9)	76 (75.2)	105(43.8)
Causes a woman to have a low weight baby	95 (68.3)	24 (23.8)	119(49.6)
Makes pregnant woman have less blood	15 (10.8)	1 (1.0)	16(6.7)
<b>Malaria be prevention</b>			
Do not know	30 (21.6)	50 (49.5)	80(33.3)
Sleep under insecticide treated nets	91 (65.5%)	50 (49.5)	141(58.8)
Maintain clean environment	18 (12.9%)	1 (1.0)	19(7.9)
Go to the clinic regularly	0 (0.0)	1 (1.0)	1 (0.4)
<b>Benefits of skin-to-skin contact</b>			
Do not know	44 (31.7)	63 (62.4)	107(44.6)
No benefit	6 (4.3)	38 (37.6)	44(18.3)
Helps baby keep warm	15 (10.8)	0 (0.0)	15(6.25)
Encourages early breastfeeding	74 (53.2)	0 (0.0)	74(30.8)

**Table 4.31: Knowledge of Mothers on Antenatal and Postnatal Care in Intervention and Control Groups at Endline continued**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>How early a pregnant woman should attend antenatal clinic</b>			
Do not know	18 (12.9)	24 (23.8)	42(17.5)
>3 months	37 (26.6)	50 (49.5)	87(36.3)
2-3 months	34 (24.5)	24 (23.8)	58(24.2)
1 month	50 (36.0)	3 (3.0)	53(22.1)
<b>Source information on infant feeding?</b>			
Do not know	35 (25.4)	67 (66.3)	102(42.5)
Health centre	101 (72.5)	33 (32.7)	134(55.8)
Health worker	1 (0.7)	0 (0.0)	1(0.4)
Sibling	1 (0.7)	1 (0.9)	2(0.8)
Sibling-inlaw	1 (0.7)	0 (0.0)	1(0.4)

#### **4.3.20 Knowledge of Mothers on Recommended Breastfeeding and Appropriate Complementary Feeding Practice in Intervention and Control Groups at Endline**

The intervention group had more (63.3%) mothers who knew the benefits of colostrum, than mothers in the control group (1.0%). Majority (74.8%) of the mothers in the intervention group had heard of exclusive breastfeeding, while less than half (45.5%) of mothers in the control group knew about exclusive breastfeeding. More than half (60.4%) of mothers in the intervention group knew the meaning of exclusive breastfeeding, while 29.7% of the mothers in the control group had same knowledge.

About two thirds (79.1%) of mothers in the intervention group knew when breastfeeding should be initiated after birth, while no mother in the control group knew the correct practice. Mothers in the intervention group knew the correct time to introduce complementary food was six months after birth (77.7%); while mothers in the control group did not have this information. Fewer (31.7%) mothers in the intervention group reported they did not know the benefits of breastfeeding for mothers, compared to 71.0% of mothers in the control group.

**Table 4.32: Knowledge of Mothers on Recommended Breastfeeding and Appropriate Complementary Feeding Practice in Intervention and Control Groups at Endline**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>Benefits of colostrum</b>			
Do not know	38 (27.3)	73 (72.3)	111(46.3)
No benefits	13 (9.4)	27 (26.7)	40(16.7)
Provides a protective lining of the gut	83 (59.7)	1 (1.0)	84(35.0)
Helps the gut develop	5 (3.6)	0 (0.00)	5(2.1)
<b>Heard of Exclusive Breastfeeding</b>			
No	35 (25.2)	55 (54.5)	90(37.5)
Yes	104 (74.8)	46 (45.5)	150(62.5)
<b>Exclusive breastfeeding means</b>			
Do not know	55 (39.6)	71 (70.3)	126(52.5)
Feeding baby with only breast milk	83 (59.7)	30 (29.7)	113(47.1)
Feeding baby with only breast milk for 6 months	1 (0.7)	0 (0.0)	1(0.4)
<b>After birth Breast milk should be introduced</b>			
Do not know	29 (20.9)	50 (49.5)	79(32.9)
Two days later	0 (0.0)	51 (50.5)	51(21.3)
At least an hour after	110 (79.1)	0 (0.0)	110(45.8)
<b>Number of times a baby should be breastfed in a day</b>			
Do not know	22 (15.8)	46 (45.5)	68(28.3)
On demand	118 (84.2)	55 (54.5)	172(71.7)
<b>Other foods could be introduced</b>			
Do not know	31(22.3)	77 (76.2)	108(45.0)
Immediately after birth	0 (0.0)	24 (23.8)	24(10.0)
6 months later	108 (77.7)	0 (0.0)	108(45.0)

**Table 4.32: Knowledge of Mothers on Recommended Breastfeeding and Appropriate Complementary Feeding Practice in Intervention and Control Groups at Endline contd.**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>Benefits of Breastfeeding to the mother</b>			
Do not know	44 (31.7)	71 (71.0)	115(47.9)
Reduces bleeding	71 (51.1)	28 (28.0)	99(41.3)
Reduces weight	17 (12.2)	2 (1.0)	19(7.9)
Helps the womb return...	0 (0.0)	0 (0.00)	0(0)
Reduces chances of ovarian & breast cancer	7 (5.0)	0 (0.00)	7(2.9)
<b>Semi-solid food can be introduced</b>			
1 month after birth	19 (13.7)	62 (61.4)	81(33.8)
2 months after birth	0 (0.0)	0 (0.00)	0(0)
6 months after birth	120 (86.3)	39 (38.6)	159(66.3)
<b>Item used in feeding a baby complementary food</b>			
Feeding bottle	88 (61.2)	70 ( 71.4)	158(65.8)
Cup/Plate	54 (38.8)	28 (28.6)	82(34.2)
<b>Maintain a hygienic environment by</b>			
Incorrect response	53 (38.1)	74 (73.3)	127(52.9)
Correct response	86 (61.9)	27 (26.7)	113(47.1)
<b>Importance of EBF</b>			
Do not know	29 (20.9)	58 (57.4)	87(36.1)
Protects baby's health	84 (60.4)	42 (41.6)	126(52.5)
Better bonding	11 (7.9)	0 (0.0)	11(4.6)
Perfect food for baby	11 (7.9)	0 (0.0)	11(4.6)
Keeps babies happy	4 (2.9)	0 (0.0)	4(1.6)

#### **4.3.21 Knowledge of Mothers on Growth Monitoring in Intervention and Control Groups at Endline**

The mothers who had heard of growth monitoring were more (59.0%) in the intervention group than in the control group (8.9%). While 53.2% of mothers in the intervention group knew the required frequency of growth monitoring, no mother in the control group had this knowledge. This was also the case as regards the benefits of growth monitoring, while 68.3% of mothers in the intervention group knew the benefits, no mother in the control group had this knowledge.



**Table 4.33: Knowledge of Mothers on Growth Monitoring in Intervention and Control Groups at Endline**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>Heard of Growth monitoring</b>			
No	57 (41.0)	92 (91.1)	149(62.1)
Yes	82 (59.0)	9 (8.9)	91(37.9)
<b>Meaning of Growth monitoring (GM)</b>			
Do not know	85 (61.2)	98 (97.0)	183(76.3)
Taking baby to be weighed by Health Worker regularly	54 (38.8)	3 (3.0)	57(23.8)
<b>Number of times a baby should be taken for GM</b>			
Do not know	65 (46.8)	94 (93.1)	159(66.3)
Everyday	0 (0.0)	7 (6.9)	7(2.9)
Once a month	74 (53.2)	0 (0.0)	74(30.8)
<b>Benefits of growth monitoring</b>			
Do not know	44 (31.7)	87 (86.1)	131(54.6)
There are no benefits	0 (0.0)	14 (13.9)	14(5.8)
Know how the baby is growing	84 (60.4)	0 (0.0)	84(35.0)
Know if baby has health problems	11 (7.9)	0 (0.0)	11(4.6)

#### **4.3.22 Knowledge of Mothers on Oral Rehydration Therapy in Intervention and Control Groups at Endline**

More (67.6%) mothers in the intervention group had heard of oral rehydration therapy, than their counterparts in the control group (11.9%). While more than half (69.1%) of the mothers in the intervention group knew the benefits of oral rehydration therapy, no mother in the control group did. Majority (90.1%) of mothers in the control group did not know when oral rehydration therapy should be given to a child, however, more than half (54.0%) of mothers in the intervention group knew it was a treatment for diarrhea. Less than a quarter (13.9%) of mothers in the control group knew the ingredients used in making oral rehydration therapy, yet, 66.9% of mothers in the intervention group knew the ingredients.

**Table 4.34: Knowledge of Mothers on Oral Rehydration Therapy in Intervention and Control Groups at Endline**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>Heard of ORT</b>			
No	45 (32.4)	89 (88.1)	134(55.8)
Yes	94 (67.6)	12 (11.9)	106(44.5)
<b>Benefit of ORT</b>			
Do not know	43 (30.9)	91 (90.0)	134(55.8)
No benefits	0 (0.0)	10 (9.9)	10 (4.2)
Prevents dehydration	96 (69.1)	0 (0.0)	96(40.0)
<b>A child should be given ORT</b>			
Do not know	51 (36.7)	91 (90.1)	142(59.2)
When there is no food	13 (9.4)	10 (9.9)	23(9.6)
When a child has diarrhea	75 (54.0)	0 (0.0)	75(31.3)
<b>Ingredients used in making ORT</b>			
Do not know	46 (33.1)	87 (86.1)	133(55.4)
Salt, sugar, water	93 (66.9)	14 (13.9)	107(44.6)
<b>How ORT is made</b>			
Do not know	46 (33.1)	92 (91.1)	138(57.5)
Mix half teaspoon of salt with 8 flat teaspoons of sugar in 1litre of clean water	93 (66.9)	9 (8.9)	102(42.5)

#### **4.3.23 Knowledge of Mothers on Immunization in Intervention and Control Groups at Endline**

Majority (90.6%) of the mothers in the intervention group have heard of immunization, while about half (66.3%) had heard of immunization in the control group. About a third (48.2%) of mothers in the intervention group knew when the first immunization was administered, while no mother in the control group had this knowledge.

**Table 4.35: Knowledge of Mothers on Immunization in Intervention and Control Groups at Endline**

<b>Variables</b>	<b>Intervention n (%)</b>	<b>Control n(%)</b>	<b>Total n(%)</b>
<b>Heard of immunization</b>			
No	13 (9.4)	34 (33.7)	47(19.6)
Yes	126 (90.6)	67 (66.3)	193(80.4)
<b>When a baby get the first immunization</b>			
Do not know	0 (0.0)	54 (53.5)	54(22.4)
Anytime the mother goes to clinic	72 (51.8)	47 (46.5)	119(49.6)
Immediately after birth	67 (48.2)	0 (0.0)	67(27.9)
<b>When a baby get TB and Polio vaccines</b>			
Do not know	0 (0.0)	88 (87.1)	88(36.7)
One week after birth	39 (28.1)	13 (12.9)	52(21.7)
At birth	100 (71.9)	0 (0.0)	100(41.7)
<b>Last immunization given to an infant</b>			
Do not know	0 (0.0)	61 (60.4)	61(25.4)
Meningitis, typhoid fever	69(49.6)	40 (39.6)	109(45.4)
Yellow fever	70 (50.4)	0 (0.0)	70(29.2)
<b>Immunization given to has (index child)</b>			
Do not know	40 (28.8)	17 (16.8)	57(23.8)
BCG, OPVI, HEPBO	79 (56.8)	80 (79.2)	159(66.3)
OPVI,Pentavalent 1, PCV, Rotavirus	7 (5.0)	3 (3.0)	10(4.2)
Measles	10 (7.2)	0 (0.0)	10(4.2)
Yellow fever	3 (2.2)	1 (1.0)	4(1.7)

#### **4.3.24 Knowledge of Mothers on Food Sources of Micronutrients in Intervention and Control Groups at Endline**

More (64.0%) mothers in the intervention group knew the food sources of vitamin A than those in the control group (4.0%). 50.1% of mothers in the intervention group knew the food source for Iron, while only 5.0% of their counterparts in the control group had same information. Over three quarters (84.9%) of the mothers in the intervention group knew the correct food sources of Iodine; however, 1.0% knew the source of Iodine amongst mothers in the control group.

**Table 4.36: Knowledge of Mothers on Food Sources of Micronutrients in Intervention and Control Groups at Endline**

<b>Variables</b>	<b>Intervention n (%)</b>	<b>Control n(%)</b>	<b>Total n(%)</b>
<b>Food sources of Vit. A</b>			
Incorrect response	50 (36.3)	97 (96.0)	147(61.3)
Correct response	89 (64.0)	4 (4.0)	93(38.8)
<b>Food source of Iron</b>			
Incorrect response	68 (49.3)	96 (95.0)	164 (68.3)
Correct response	71 (50.1)	5 (5.0)	76 (31.7)
<b>Food source of Iodine</b>			
Incorrect response	21 (15.1)	100 (99.0)	121 (50.4)
Correct response	118 (84.9)	1 (1.0)	119 (49.6)
<b>Food source of Zinc</b>			
Incorrect response	28 (20.1)	101 (100)	129 (53.8)
Correct response	111 (79.9)	0 (0.0)	111 (46.3)

#### **4.3.25 Knowledge of Mothers on Family Planning Guidelines in Intervention and Control Groups at Endline**

More than half (61.9%) of the mothers in the intervention group knew about the age restrictions to getting pregnant, while 35.6% of the mothers in the control group had this knowledge. Majority (71.2%) of mothers in the intervention group knew the recommended birth spacing period, while no mother in the control group had same knowledge.



**Table 4.37: Knowledge of Mothers on Family Planning Guidelines in Intervention and Control Groups at Endline**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>Age restriction to getting pregnant</b>			
Do not know	53 (38.1)	65 (64.4)	118 (49.2)
Yes	86 (61.9)	36 (35.6)	122 (50.8)
<b>Age NOT safe to get pregnant</b>			
Do not Know	45 (32.4)	57 (56.4)	102 (42.5)
Before 18 years	94 (67.6)	44 (43.6)	138 (57.5)
<b>Recommended birth spacing</b>			
Do not know	40 (28.8)	43 (42.6)	83 (34.6)
1 year	0 (0.0)	58 (57.4)	58 (24.2)
2 years	99 (71.2)	0 (0.0)	99 (41.3)

#### **4.3.26 Attitude of Mothers regarding Antenatal and Postnatal Care in Intervention and Control Groups at Endline**

More (95.0%) mothers in the intervention group agreed that pregnant women should attend antenatal clinic regularly; while 80.2% of mothers in the control group had same opinion. Fewer (40.6%) mothers in the control group disagreed that a woman can get pregnant as often as she pleases; however, more than half (64.0%) of mothers in the intervention disagreed. Majority (81.2%) of the mothers in the intervention group disagreed that traditional care is more important during pregnancy; only 24.8% of mothers in the control group disagreed with this opinion.

**Table 4.38: Attitude of Mothers regarding Antenatal and Postnatal Care in Intervention and Control Groups at Endline**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>A pregnant woman should eat healthy and nutritious foods</b>			
Disagree	6 (4.3)	8 (7.9)	14 (5.8)
Agree	133 (95.7)	93 (92.1)	226(94.2)
<b>Women must attend antenatal regularly when pregnant</b>			
Disagree	7 (5.0)	20 (19.8)	27 (11.3)
Agree	132 (95.0)	81 (80.2)	213(88.8)
<b>A pregnant woman can smoke</b>			
Agree	20 (14.4)	55 (54.5)	77 (32.1)
Disagree	119 (85.6)	46 (45.5)	165(68.8)
<b>Pregnant women should engage in light exercise</b>			
Disagree	23 (16.8)	21 (20.8)	44(18.3)
Agree	116 (83.2)	80 (79.2)	196(81.7)
Total	139 (100)	101 (100)	240 (100)
<b>Every pregnant woman should take advantage of the health center</b>			
Disagree	20 (14.4)	31 (30.7)	51(21.3)
Agree	119 (85.6)	70 (69.5)	189(78.8)
<b>A woman can get pregnant as often as she wants</b>			
Agree	50 (36.0)	60 (59.4)	110(45.8)
Disagree	89 (64.0)	41 (40.6)	130(54.2)
<b>There should not be age restrictions to getting pregnant</b>			
Agree	51 (36.7)	57 (57.0)	108(45.0)
Disagree	88 (63.3)	43 (43.0)	13 (54.6)

**Table 4.38: Attitude of Mothers regarding Antenatal and Postnatal Care in Intervention and Control Groups at Endline continued**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>Traditional care in pregnancy is more important than medical care</b>			
Agree	26 (18.8)	76 (75.2)	102(42.5)
Disagree	112 (81.2)	25 (24.8)	137(57.1)
<b>It is better to give birth with a TBA than a health centre</b>			
Agree	19 (13.7)	71 (70.3)	90 (37.5)
Disagree	120 (86.3)	30 (29.7)	150(62.5)

#### **4.3.27 Attitude of Mothers regarding Recommended Breastfeeding and Appropriate Complementary Feeding Practice in Intervention and Control Groups at Endline**

More (82.7%) mothers in the intervention group agreed that colostrum is good for a baby, while about half (58.4%) had same opinion. Although more than half (67.3%) of mothers in the control group agreed that introducing breastfeeding immediately after birth had health benefits. More than three quarters (89.2%) of mothers in the intervention group had same opinion. Most (83.5%) of the mothers in the intervention group agreed that breastfeeding should be on demand, while fewer (67.0%) mothers in the control group had similar opinion.

**Table 4.39: Attitude of Mothers regarding Recommended Breastfeeding and Appropriate Complementary Feeding Practice in Intervention and Control Groups at Endline**

<b>Variables</b>	<b>Intervention n (%)</b>	<b>Control n(%)</b>	<b>Total n(%)</b>
<b>The first breast milk that is yellowish in colour is good for a baby's health</b>			
Disagree	24 (17.3)	42(41.6)	66 (27.5)
Agree	115 (82.7)	59(58.4)	174(72.5)
<b>Introducing a baby to breast milk immediately after birth has benefits</b>			
Disagree	15 (10.8)	33 (32.7)	48 (20.0)
Agree	124 (89.2)	68 (67.3)	192(80.0)
<b>A baby can be given water after 2 months</b>			
Agree	60 (43.5)	46 (45.5)	106(44.2)
Disagree	78 (56.5)	55 (54.5)	133(55.4)
<b>A baby can only be given water 6 months after birth</b>			
Disagree	46 (33.1)	44 (43.6)	90 (37.5)
Agree	93 (66.9)	57 (56.4)	150(62.5)
<b>A baby should be breastfed on demand</b>			
Disagree	23 (16.5)	33 (33.0)	56 (23.3)
Agree	116 (83.5)	68 (67.0)	184(76.7)

#### **4.3.28 Attitude of Mothers regarding Growth Monitoring in Intervention and Control Groups at Endline**

Mothers in the intervention groups agreed that growth monitoring of a baby is very important (87.8%), while 65.3% of the mothers in the control group had same opinion. While fewer (47.5%) mothers in the control group agreed that growth monitoring could help discover hidden illnesses, majority (85.6%) of the mothers in the intervention group agreed that growth monitoring helped in discovering hidden illnesses. More (83.5%) mothers in the intervention group agreed that growth monitoring should be done once a month for the first year, while less than half (46.5%) of the mothers in the control group subscribed to this idea.

**Table 4.40: Attitude of Mothers regarding Growth Monitoring in Intervention and Control Groups at Endline**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>Monitoring the growth of a baby is very important</b>			
Disagree	17 (12.2)	35 (34.7)	54(22.5)
Agree	122 (87.8)	66 (65.3)	188(78.3)
<b>Growth monitoring can help discover if a baby has hidden illnesses</b>			
Disagree	20 (14.4)	53 (52.5)	73 (30.4)
Agree	119 (85.6)	48 (47.5)	167(69.6)
<b>It is important that a mother takes her baby for growth monitoring</b>			
Disagree	20 (14.5)	37 (36.6)	57 (23.8)
Agree	118 (85.5)	64 (63.4)	182(75.8)
<b>A baby must be weighed once every month for the first one year</b>			
Disagree	23 (16.5)	54 (53.5)	77 (32.1)
Agree	116 (83.5)	47 (46.5)	163(67.9)



#### **4.3.29 Attitude of Mothers regarding Oral Rehydration Therapy in Intervention and Control Group at Endline**

The intervention group showed more favourable perception regarding oral rehydration therapy than the control group. More (81.3%) mothers in the intervention group agreed that oral rehydration therapy could save the life of a baby suffering from diarrhea; while less than half (39.0%) amongst mothers in the control group agreed. Most (73.2%) of the mothers in the intervention group disagreed that oral rehydration therapy can only be made by health workers, while few (42.6%) of mothers in the control group also disagreed.

**Table 4.41: Attitude of Mothers regarding Oral Rehydration Therapy in Intervention and Control Group at Endline**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>ORT can save the life of a baby suffering from diarrhea</b>			
Disagree	26 (18.7)	61(60.4)	87 (36.3)
Agree	113 (81.3)	40 (39.6)	153(63.8)
<b>There is no particular measurement for making ORT</b>			
Agree	41 (29.5)	58 (58.0)	99 (41.3)
Disagree	98 (70.5)	43 (42.0)	141(58.8)
<b>ORT does not help rehydrate a baby with diarrhea</b>			
Agree	43 (30.9)	54 (53.5)	97 (40.4)
Disagree	96 (69.1)	47 (46.5)	143(59.6)
<b>ORT can only be made by health workers</b>			
Agree	37 (26.8)	58 (57.4)	95 (39.6)
Disagree	102 (73.2)	43 (42.6)	145(60.4)

#### **4.3.30 Attitude of Mothers regarding Immunization in Intervention and Control Groups at Endline**

Most (81.3%) mothers in the intervention group agreed that immunization should not be taken for granted, as against 66.3% amongst mothers in the control group. Although, more than half (67.3%) of mothers in the control group agreed that immunization should be made compulsory, a greater proportion (75.5%) of mothers in the intervention group agreed also. Majority (84.2%) of mothers in the intervention group agreed that a child who is immunized is not at risk of getting certain viral infections, as against 78.2% of mothers in the control group who had same opinion.

**Table 4.42: Attitude of Mothers regarding Immunization in Intervention and Control Groups at Endline**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>The immunization of babies should not be taken for granted</b>			
Disagree	26 (18.7)	34(33.7)	60(25.0)
Agree	113 (81.3)	67(66.3)	180(75.0)
<b>Immunization protects from infections and diseases</b>			
Disagree	14 (10.1)	8 (7.9)	22(9.2)
Agree	125 (89.9)	93 (92.1)	218(90.8)
<b>Immunization should not be compulsory</b>			
Agree	34 (24.5)	33 (32.7)	67(27.9)
Disagree	105 (75.5)	68 (67.3)	173(72.1)
<b>A child who is immunized is not at risk of getting certain viral infections</b>			
Disagree	22 (15.8)	22 (21.8)	44(18.3)
Agree	117 (84.2)	79 (78.2)	196(81.7)
<b>A baby's father must approve immunization before the baby can be immunized</b>			
Agree	60 (43.2)	29 (28.7)	89 (37.1)
Disagree	79 (56.8)	72 (71.3)	151(62.9)

#### **4.3.27 Practice of Mothers regarding Antenatal and Postnatal Care in Intervention and Control Groups at Endline**

More (12.2%) mothers in the intervention group mentioned taking folic acid as a practice for a pregnant women; 2.0% of mothers in the control group mentioned this practice. Most (92.3%) of mothers in the intervention group delivered their baby in a clinic or hospital, while 84.2% of their counterparts in the control group also delivered at a clinic or hospital. While more (49.5%) mothers in the control group started antenatal clinic after their first trimester, about a third (36.0%) of mothers in the intervention group started antenatal clinic one month into their pregnancy. More (85.6%) mothers in the intervention group reported that they attended antenatal clinic during their last pregnancy, while 79.2% did same amongst mothers in the control group.

**Table 4.43: Practice of Mothers regarding Antenatal and Postnatal Care in Intervention and Control Groups at Endline**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>How a pregnant woman should take care of herself</b>			
Do not know	25 (18.0)	45 (44.5)	70(29.4)
Nothing	2 (1.5)	1 (1.0)	3 (1.3)
Eat healthy meals	95 (68.3)	51 (50.5)	146(61.3)
Start taking folic acid	17 (12.2)	4 (3.9)	19 (8.0)
<b>Other antenatal options asides health facility</b>			
Not applicable	108 (77.7)	92 (91.1)	200(83.3)
TBA	2 (1.4)	8 (7.9)	10(4.2)
Community Health Worker	28 (20.1)	1 (1.0)	29(12.1)
Mother/GrandMa	1 (0.7)	0 (0.0)	1(0.4)
<b>Mainly go to obtained antenatal care at</b>			
No antenatal visit	0 (0.0)	2 (2.9)	2(1.0)
Hospital	15 (10.9)	68 (97.1)	83(40.1)
Clinic	122 (89.1)	0 (0.0)	122(58.9)
<b>Makes decision on how to feed your baby</b>			
Nobody	36 (25.9)	20 (19.8)	56(23.3)
Self	103 (74.1)	80 (79.2)	183(76.3)
Self and spouse	0 (0.0)	1 (1.0)	1(0.4)
<b>Place of delivery</b>			
Home	10 (7.7)	16 (15.8)	26(11.3)
Clinic/Hospital	120 (92.3)	85 (84.2)	205(88.7)

**Table 4.43: Practice of Mothers regarding Antenatal and Postnatal Care in Intervention and Control Groups at Endline continued**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>Antenatal attendance during last pregnancy</b>			
No	20 (14.4)	21 (20.8)	41(17.1)
Yes	119 (85.6)	80(79.2)	199(82.9)
<b>Number of months of pregnancy by first ANC visit</b>			
Cannot remember	12 (8.6)	4 (4.0)	16(6.7)
>3months	127 (91.4)	97 (96.0)	224(93.3)
<b>Number of visits to health facility for postnatal care</b>			
1 – 4 times	105 (91.2)	91 (94.8)	196(81.7)
>4 – 8 times	10 (8.8)	5 (5.2)	15(6.3)
<b>Number of ANC visits when pregnant (index child)</b>			
1-5	33 (23.8)	18 (23.4)	51(23.6)
6-10	103 (74.7)	34 (44.2)	137(63.8)
11-15	3 (2.1)	23 (29.9)	26(12.0)
<b>How old baby was at first postnatal visit</b>			
0 – 2 weeks	97 (74.1)	68 (69.4)	165(72.1))
>2 – 4 weeks	22 (16.8)	29 (29.5)	51(22.3)
>4 – 6 weeks	7 (5.4)	1 (1.0)	8(3.3)
>6 – 8 weeks	2 (1.6)	0 (0.0)	2(0.9)
>8 weeks	3 (2.3)	0 (0.0)	3(1.3)

#### **4.3.32 Practice of Mothers regarding Recommended Breastfeeding and Appropriate Complementary Feeding in Intervention and Control Groups at Endline**

Majority (92.1%) of mothers in the intervention groups used cup or plates to feed complementary foods, none in the control group used these utensils, instead, majority (86.2%) reported they did not know the right utensil to use. There were more (50.7%) mothers in the intervention group who breastfed their baby more when he or she was sick, while less than half (22.4%) of mothers in the control group gave more breastmilk than usual. Above three quarters (89.9%) of mothers in the intervention group intended to breastfeed their baby for twenty-four months, as for the control group, 2.0% indicated they intended to breastfeed for same period.



**Table 4.45: Practice of Mothers regarding Recommended Breastfeeding and Appropriate Complementary Feeding in Intervention and Control Groups at Endline continued**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>Utensil mostly used for drinking milk and other fluid</b>			
Do not know	0 (0.0)	75 (86.2)	75(33.2)
Feeding bottle	11 (7.9)	12 (13.8)	22(9.7)
Cup/plate	128 (92.1)	0 (0.0)	128(56.6)
<b>Frequency of breastfeeding or giving other liquids to (index child) when ill</b>			
Less than usual	0 (0.0)	76 (77.6)	76(32.6)
More than usual	109 (50.7)	22 (22.4)	131(56.2)
Same as usual	26 (19.3)	0 (0.0)	26(11.2)
<b>Period after the birth of (index child) before breastfeeding</b>			
Do not remember	51 (36.7)	11 (11.7)	62(26.6)
Immediately/less than an hour	88 (63.3)	65 (69.1)	153(65.7)
<b>Ever breast fed (index child)</b>			
No	37 (26.6)	14 (14.0)	51(21.3)
Yes	102 (73.4)	87 (86.0)	189(78.6)
Total	139 (100)	101 (100)	240(100)
<b>Age intended to stop breastfeeding (index child)</b>			
No idea	0 (0.0)	93 (92.1)	93(38.8)
Less than 24 months	14 (10.1)	6 (5.9)	20(8.33)
24 months	125 (89.9)	2 (2.0)	127(52.9)

**Table 4.45: Practice of Mothers regarding Recommended Breastfeeding and Appropriate Complementary Feeding in Intervention and Control Groups at Endline continued**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>Still breastfeeding (index child)</b>			
No	8 (6.3)	12 (12.8)	20(9.0)
Yes	119 (93.7)	82 (87.2)	201(91.0)
<b>Alternate breast when breastfeeding</b>			
No	54 (38.8)	64(55.3)	118(55.1)
Yes	85 (61.2)	11 (14.7)	96(44.9)
<b>Reasons for not initiating breastfeeding immediately</b>			
Not applicable	84 (60.9)	12 (40.0)	96(57.1)
Mother ill	14 (10.1)	0 (0.0)	14(8.3)
Infant ill	2 (1.4)	0 (0.0)	2(1.2)
Infant premature	6 (4.3)	0 (0.0)	6(3.6)
Cleaning up after birth	18 (13.0)	1 (3.3)	19(11.3)
Infant not brought immediately	6 (4.3)	3 (10.0)	9(5.4)
Mother's decision	4 (2.9)	0 (0.0)	4(2.4)
Insufficient breast milk	4 (2.9)	0 (0.0)	4(2.4)
No breast milk	0 (0.0)	14 (46.7)	14(8.3)

#### **4.3.33 Practice of Mothers regarding Growth Monitoring, Oral Rehydration Therapy and Immunization in Intervention and Control Groups at Endline**

Most (80.6%) of the mothers in the intervention group had taken their baby for growth monitoring, while less than a quarter (12.9%) of mothers in the control group had done same. More than half (60.1%) of mothers in the intervention group had given their baby oral rehydration therapy when he or she had diarrhea, only eight (8) mothers in the control group indicated they had administered oral rehydration therapy when their baby had diarrhea. While 45.7% of mothers in the intervention group took their baby for growth monitoring the previous month, a few (11.9%) mothers in the control group had taken their baby for growth monitoring also.

**Table 4.46: Practice of Mothers regarding Growth Monitoring, Oral Rehydration Therapy and Immunization in Intervention and Control Groups at Endline**

Variables	Intervention n (%)	Control n(%)	Total n(%)
<b>Taken your baby for growth monitoring before</b>			
No	27 (19.4)	88 (87.1)	115(47.9)
Yes	112 (80.6)	13 (12.9)	125(52.1)
<b>Administered ORT when child had diarrhea</b>			
No	55 (39.9)	8 (50.0)	63(40.9)
Yes	83 (60.1)	8 (50.0)	91(59.1)
<b>Gone for immunization</b>			
No	8 (6.4)	34 (33.7)	42(18.6)
Yes	117 (93.6)	67 (66.3)	184(81.4)
<b>Last time index child was taken for growth monitoring</b>			
Never	0 (0.0)	89 (88.1)	89(37.2)
Last month	63 (45.7)	12 (11.9)	75(31.4)
< 1 month ago	75 (54.3)	0 (0.0)	75(31.4)
<b>Frequency of Growth Monitoring</b>			
Never	0 (0.0)	5 (41.7)	5(3.3)
Monthly	78 (56.5)	7 (58.3)	85(56.7)
Not often	57 (41.3)	0 (0.0)	57(38.0)
Every 3 months	3 (2.2)	0 (0.0)	3(2.0)

#### **4.3.34 Knowledge of Mothers on Antenatal and Postnatal Care in Intervention Group at Baseline and Endline**

On mother's knowledge regarding antenatal and postnatal care, more (83.5%) mothers at endline knew the importance of starting antenatal clinic immediately a woman knows she is pregnant. There was an increase in the proportion (79.1%) of mothers who knew the danger of malaria in pregnancy at endline than at baseline (69.5%). There was a significant difference ( $X^2 = 2.233$ ;  $p = 0.027$ ) between the endline and baseline. More (78.4%) mothers knew how to prevent malaria at endline compared with baseline (57.6%). The mothers who knew the benefits of skin-to-skin contact after delivery increased (64.0%) at endline, compared to baseline (4.3%).

**Table 4.47: Knowledge of Mothers on Antenatal and Postnatal Care in Intervention Group at Baseline and Endline**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>What a woman should do when she finds out she is pregnant</b>					
Nothing	29 (42.2)	14 (10.1)	1.551 <sup>a</sup>	0.123	Not Sign.
Start antenatal	100 (71.9)	116 (83.5)			
Eat different foods	10 (7.2)	9 (6.5)			
<b>A pregnant woman should eat more food</b>					
No	38 (27.3)	22 (15.9)	0.411 <sup>a</sup>	0.682	Not Sign.
Yes	101 (72.7)	116 (84.1)			
<b>Danger of malaria during pregnancy</b>					
Do not know	40 (28.8)	29 (20.9)	2.233 <sup>a</sup>	0.027	Sign.
Causes a woman to have a low weight baby	99 (66.9)	95 (68.3)			
Makes pregnant woman have less blood	5 (3.6)	15 (10.8)			
Does not have any effect	1 (0.7)	0 (0.0)			

**Table 4.47: Knowledge of Mothers on Antenatal and Postnatal Care in Intervention Group at Baseline and Endline continued**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>Malaria be prevention</b>					
Do not know	57 (41.0)	30 (21.6)	0.286 <sup>a</sup>	0.775	Not Sign.
Sleep under insecticide treated nets	70 (50.4)	91 (65.5%)			
Maintain clean environment	10 (7.2)	18 (12.9%)			
Go to the clinic regularly	2 (1.4)	0 (0.0)			
<b>Benefits of skin-to-skin contact</b>					
Do not know	66 (47.5)	44 (31.7)	0.000 <sup>a</sup>	1.000	Not Sign.
No benefit	67 (48.2)	6 (4.3)			
Helps baby keep warm	4 (2.9)	15 (10.8)			
Encourages early breastfeeding	2 (1.4)	74 (53.2)			
<b>How early a pregnant woman should attend antenatal clinic</b>					
Do not know	12 (10.3)	18 (12.9)	1.786 <sup>a</sup>	0.077	Not Sign.
>3 months	78 (66.7)	37 (26.6)			
2-3 months	17 (14.5)	34 (24.5)			
1 month	10 (8.5)	50 (36.0)			
<b>Source of information on infant feeding</b>					
Do not know	14 (11.8)	35 (25.4)	2.851 <sup>a</sup>	0.005	Sign.
Health centre	97 (81.5)	100 (72.5)			
Health worker	1 (0.8)	1 (0.7)			
Sibling	2 (1.7)	1 (0.7)			
Sibling-inlaw	1 (0.8)	1 (0.7)			
Mother	4 (3.4)	0 (0.0)			

#### **4.3.35 Knowledge of Mothers on Recommended Breastfeeding and Appropriate Complementary Feeding Practice in Intervention Group at Baseline and Endline**

At endline, more than half (63.3%) of the mothers knew the importance of colostrum, as against 10.1% at baseline. A larger proportion (74.8%) of mothers had heard of exclusive breastfeeding at endline than at baseline (52.5%). There was a significant difference ( $X^2 = 2.102$ ;  $p = 0.037$ ) between the proportion that had heard of exclusive breastfeeding at endline and baseline. The mothers who knew the meaning of exclusive breastfeeding increased from 25.9% at baseline to 60.4% at endline. There was a significant difference ( $X^2 = 3.966$ ;  $p < 0.05$ ) between the baseline and endline responses.

More than three quarters (79.1%) of the mothers at endline knew that breastfeeding should be initiated immediately or less than an hour after birth. There was a significant difference ( $X^2 = 4.012$ ;  $p < 0.05$ ) between baseline and endline results. A greater proportion (77.7%) of the mothers at endline knew that complementary food can only be introduced to a baby six months after birth. More (79.1%) mothers at endline knew the benefits of exclusive breastfeeding for the baby than at baseline (62.6%).



**Table 4.48: Knowledge of Mothers on Recommended Breastfeeding and Appropriate Complementary Feeding Practice in Intervention Group at Baseline and Endline**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n(%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>Benefits of colostrum</b>					
Do not know	62 (44.6)	38 (27.3)	1.623 <sup>a</sup>	0.107	Not Sign.
No benefits	63 (45.3)	13 (9.4)			
Provides a protective lining of the gut	10 (7.2)	83 (59.7)			
Helps the gut develop	4 (2.9)	5 (3.6)			
<b>Heard of Exclusive Breastfeeding</b>					
No	66 (47.5)	35 (25.2)	2.102 <sup>a</sup>	0.037	Sign.
Yes	73 (52.5)	104 (74.8)			
<b>Exclusive breastfeeding means</b>					
Do not know	103 (73.4)	55 (39.6)	3.966 <sup>a</sup>	0.000	Sign.
Feeding baby with only breast milk	36 (25.9)	83 (59.7)			
Feeding baby with only breast milk for 6 months	0 (0.0)	1 (0.7)			
<b>After birth Breast milk should be introduced</b>					
Do not know	64 (46.6)	29 (20.9)	4.012 <sup>a</sup>	0.000	Sign.
At least an hour after	75 (34.0)	110 (79.1)			
<b>Number of times a baby should be breastfed in a day</b>					
Do not know	25 (18.0)	22 (15.8)	0.132 <sup>a</sup>	0.895	Not Sign.
On demand	114 (82.0)	117 (84.2)			

**Table 4.48: Knowledge of Mothers on Recommended Breastfeeding and Appropriate Complementary Feeding Practice in Intervention Group at Baseline and Endline continued**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>Other foods could be introduced</b>					
Do not know	65 (46.8)	31(22.3)	0.365 <sup>a</sup>	0.715	Not Sign.
Immediately after birth	74 (53.2)	0 (0.0)			
6 months later	0 (0.0)	108 (77.7)			
<b>Benefits of Breastfeeding to the mother</b>					
Do not know	64 (46.0)	44 (31.7)	0.541 <sup>a</sup>	0.589	Not Sign.
Reduces bleeding	73 (52.5)	71 (51.1)			
Reduces weight	2 (1.4)	17 (12.2)			
Reduces chances of ovarian & breast cancer	0 (0.0)	7 (5.0)			
<b>Semi-solid food can be introduced</b>					
1 month after birth	36 (25.9)	19 (13.7)	1.490 <sup>a</sup>	0.139	Not Sign.
6 months after birth	103 (74.1)	120 (86.3)			
<b>Item used in feeding a baby complementary food</b>					
Feeding bottle	101 (72.7)	88 (61.2)	1.340 <sup>a</sup>	0.182	Not Sign.
Cup/Plate	38 (27.3)	54 (38.8)			

**Table 4.48: Knowledge of Mothers on Recommended Breastfeeding and Appropriate Complementary Feeding Practice in Intervention Group at Baseline and Endline continued**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>Maintain a hygienic environment by</b>					
Incorrect response	59 (42.4)	53 (38.1)	3.750 <sup>a</sup>	0.000	Sign.
Correct response	80 (57.6)	86 (61.9)			
<b>Importance of EBF</b>					
Do not know	52 (37.4)	29 (20.9)	0.386 <sup>a</sup>	0.700	Not Sign.
Protects baby's health	72 (51.8)	84 (60.4)			
Better bonding	8 (5.8)	11 (7.9)			
Perfect food for baby	6 (4.3)	11 (7.9)			
Keeps babies happy	1 (0.7)	4 (2.9)			

#### **4.3.36 Knowledge of Mothers on Growth Monitoring in Intervention Group at Baseline and Endline**

More than half (59.0%) of the mothers had heard of growth monitoring at endline as against 35.3% at baseline. About a third (38.8%) of the mothers knew the meaning of growth monitoring at endline compared to 17.3% at baseline. About half (53.2%) of the mothers at endline knew the required frequency for growth monitoring, while none had this knowledge at baseline. There was a significant difference ( $X^2 = 2.667$ ;  $p = 0.009$ ) between those who knew the frequency of growth monitoring at baseline and endline. There was also an increase (68.3%) in mothers who knew the benefits of growth monitoring at endline when compared with baseline (5.8%).

**Table 4.49: Knowledge of Mothers on Growth Monitoring in Intervention Group at Baseline and Endline**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>Heard of Growth monitoring</b>					
No	90 (64.7)	57 (41.0)	0.128 <sup>a</sup>	0.899	Not Sign.
Yes	49 (35.3)	82 (59.0)			
<b>Meaning of Growth monitoring</b>					
Do not know	112 (80.6)	85 (61.2)	0.543 <sup>a</sup>	0.588	Not Sign.
Taking baby to be weighed by Health Worker regularly	24 (17.3)	54 (38.8)			
Looking if a baby is growing	3 (2.2)	0 (0.0)			
<b>Number of times a baby should be taken for Growth Monitoring</b>					
Do not know	110 (79.1)	65 (46.8)	2.667 <sup>a</sup>	0.009	Sign.
Everyday	29 (20.9)	0 (0.0)			
Once a month	0 (0.0)	74 (53.2)			
<b>Benefits of growth monitoring</b>					
Do not know	99 (71.2)	44 (31.7)	1.817 <sup>a</sup>	0.071	Not Sign.
There are no benefits	32 (23.0)	0 (0.0)			
Know how the baby is growing	8 (5.8)	84 (60.4)			
Know if baby has health problems	0 (0.0)	11 (7.9)			

#### **4.3.37 Knowledge of Mothers on Oral Rehydration Therapy in Intervention Group at Baseline and Endline**

A greater proportion (67.6%) of mothers had heard of oral rehydration therapy at endline compared to baseline (30.2%). There was a significant difference ( $X^2 = 2.852$ ;  $p = 0.005$ ) between the baseline and endline responses to this variable. More than half (69.1%) of the mothers knew the benefits of oral rehydration therapy at endline, while none had same knowledge at baseline. There was a significant difference ( $X^2 = 2.436$ ;  $p = 0.016$ ) between the endline and baseline results.

At baseline, less than a quarter (24.5%) of the mothers knew the ingredients used in making oral rehydration therapy; this improved at endline, with 66.9% who knew the ingredients. There was a significant difference ( $X^2 = 4.280$ ;  $p < 0.05$ ) between the baseline and endline responses. More (99.9%) mothers knew how to make oral rehydration therapy at endline as against baseline (23.7%). There was a significant difference ( $X^2 = 3.540$ ;  $p = 0.01$ ) between endline and baseline responses to this variable.

**Table 4.50: Knowledge of Mothers on Oral Rehydration Therapy in Intervention Group at Baseline and Endline**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>Heard of ORT</b>					
No	97 (69.8)	45 (32.4)	2.852 <sup>a</sup>	0.005	Sign.
Yes	42 (30.2)	94 (67.6)			
<b>Benefit of ORT</b>					
Do not know	101 (72.7)	43 (30.9)	3.203 <sup>a</sup>	0.002	Sign.
No benefits	38 (27.3)	0 (0.0)			
Prevents dehydration	0 (0.0)	96 (69.1)			
<b>A child should be given ORT</b>					
Do not know	101 (72.2)	51 (36.7)	2.436 <sup>a</sup>	0.016	Sign.
When there is no food	37 (26.6)	13 (9.4)			
When a child has diarrhea	1 (0.7)	75 (54.0)			
<b>Ingredients used in making ORT</b>					
Do not know	105 (75.5)	46 (33.1)	4.280 <sup>a</sup>	0.000	Sign.
Salt, sugar, water	34 (24.5)	93 (66.9)			
<b>How ORT is made</b>					
Do not know	106 (76.3)	46 (33.1)	3.540 <sup>a</sup>	0.001	Sign.
Mix half teaspoon of salt with 8 flat teaspoons of sugar in 1litre of clean water	33 (23.7)	93 (66.9)			

#### **4.3.38 Knowledge of Mothers on Immunization in Intervention Group at Baseline and Endline**

More (90.6%) mothers at endline had heard about immunization than at baseline (83.5%). There was an increase in the proportion (48.2%) of mothers who knew the first immunization given immediately after birth, compared with 0.7% at baseline. There was a significant difference ( $X^2 = 2.225$ ;  $p = 0.028$ ) in response to this variable at baseline and endline. Half (50.4%) of the mothers at endline knew the last immunization their baby should receive, while none had this knowledge at baseline. There was a significant difference ( $X^2 = 4.499$ ;  $p < 0.05$ ) between the endline and baseline results on this variable. Most (71.2%) mothers at endline knew the vaccines their baby had received, as against 56.8% at baseline.



**Table 4.51: Knowledge of Mothers on Immunization in Intervention Group at Baseline and Endline**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>Heard of immunization</b>					
No	23 (16.5)	13 (9.4)	0.323 <sup>a</sup>	0.747	Not Sign.
Yes	116 (83.5)	126 (90.6)			
<b>When a baby get the first immunization</b>					
Do not know	85 (61.2)	0 (0.0)	2.225 <sup>a</sup>	0.028	Sign.
Anytime the mother goes to clinic	52 (37.4)	72 (51.8)			
One month after birth	1 (0.7)	0 (0.0)			
Immediately after birth	1 (0.7)	67 (48.2)			
<b>When a baby get TB and Polio vaccines</b>					
Do not know	117 (84.2)	0 (0.0)	2.138 <sup>a</sup>	0.034	Sign.
One week after birth	22 (15.8)	39 (28.1)			
At birth	0 (0.0)	100 (71.9)			
<b>Last immunization given to an infant</b>					
Do not know	105 (75.5)	0 (0.0)	4.499 <sup>a</sup>	0.000	Sign.
Meningitis, typhoid fever	34(24.5)	69(49.6)			
Yellow fever	0 (0.0)	70 (50.4)			
<b>Immunization given to has (index child)</b>					
Do not know	60 (43.2)	40 (28.8)	5.073 <sup>a</sup>	0.000	Sign.
BCG, OPVI, HEPBO	74 (53.2)	79 (56.8)			
OPVI,Pentavalent 1, PCV, Rotravirus	5 (3.6)	7 (5.0)			
Measles	0 (0.0)	10 (7.2)			
Yellow fever	0 (0.0)	3 (2.2)			

#### **4.3.39 Knowledge of Mothers on Food Sources of Micronutrients in Intervention Group at Baseline and Endline**

More (64.0%) mothers at endline knew the food sources of vitamin A than at baseline (33.8%). There was a significant difference ( $X^2 = 2.667$ ;  $p = 0.009$ ) between the endline and baseline responses. Half (50.1%) of the mothers at endline knew the food sources of Iron, compared with 35.3% at baseline. There was also an increase in the proportion (84.9%) of mothers who knew the food sources of Iodine at endline as against 12.2% at baseline.

**Table 4.52: Knowledge of Mothers on Food Sources of Micronutrients in Intervention Group at Baseline and Endline**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>Food sources of Vit. A</b>					
Incorrect response	92 (56.2)	50 (36.3)	2.667 <sup>a</sup>	0.009	Sign.
Correct response	47 (33.8)	89 (64.0)			
<b>Food source of Iron</b>					
Incorrect response	90 (64.7)	68 (49.3)	1.507 <sup>a</sup>	0.134	Not Sign.
Correct response	49 (35.3)	70 (50.1)			
<b>Food source of Iodine</b>					
Incorrect response	122 (87.8)	21 (15.1)	0.364 <sup>a</sup>	0.716	Not Sign.
Correct response	17 (12.2)	118 (84.9)			
<b>Food source of Zinc</b>					
Incorrect response	125 (89.9)	28 (20.1)	0.729 <sup>a</sup>	0.467	Not Sign.
Correct response	14 (10.1)	101 (79.9)			

#### **4.3.40 Knowledge of Mothers on Family Planning Guidelines in Intervention Group at Baseline and Endline**

A larger proportion (61.9%) of mothers at endline knew the age restrictions to getting pregnant, compared to baseline (0.7%). There was a significant difference ( $X^2 = 3.152$ ;  $p = 0.002$ ) between the mother's responses at baseline and endline. Most (71.2%) of the mothers at endline knew the recommended birth spacing period; at baseline, only 0.7% had this knowledge.

**Table 4.53: Knowledge of Mothers on Family Planning Guidelines in Intervention Group at Baseline and Endline**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>Age restriction to getting pregnant</b>					
Do not know	83 (38.1)	53 (38.1)	3.152 <sup>a</sup>	0.002	Sign.
No	85 (61.2)	0 (0.0)			
Yes	1 (0.7)	86 (61.9)			
<b>Age NOT safe to get pregnant</b>					
Do not Know	51 (36.7)	45 (32.4)	0.696 <sup>a</sup>	0.487	Not Sign.
Before 18 years	88 (63.3)	94 (67.6)			
<b>Recommended birth spacing</b>					
Do not know	47 (33.8)	40 (28.8)	0.266 <sup>a</sup>	0.790	Not Sign.
1 year	91 (65.5)	0 (0.0)			
2 years	1 (0.7)	99 (71.2)			

#### **4.3.41 Attitude of Mothers towards Antenatal and Postnatal Care in Intervention Group at Baseline and Endline**

At endline, most (95.0%) mothers agreed that a pregnant woman should attend antenatal clinic regularly. There was a significant difference ( $X^2= 2.551$ ;  $p = 0.012$ ) between baseline and endline responses. More (64.0%) mothers at endline disagreed that a woman can get pregnant as often as she pleases, than at baseline (47.5%). More than half (63.3%) of the mothers agreed with the age restrictions under the family planning guidelines for getting pregnant. About three quarters (81.2%) of the mothers at endline did not agree on using traditional care during pregnancy. There was a significant difference ( $X^2 = 9.352$ ;  $p<0.05$ ) between the attitude of mothers at endline and baseline.

**Table 4.54: Attitude of Mothers towards Antenatal and Postnatal Care in Intervention Group at Baseline and Endline**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>
<b>A pregnant woman should eat healthy and nutritious foods</b>				
Disagree	11 (7.9)	6 (4.3)	1.419 <sup>a</sup>	0.158
Agree	128 (92.1)	133 (95.7)		
<b>Women must attend antenatal regularly when pregnant</b>				
Disagree	14 (10.1)	7 (5.0)	2.551 <sup>a</sup>	0.012
Agree	125 (89.9)	132 (95.0)		
<b>A pregnant woman can smoke</b>				
Agree	27 (19.4)	20 (14.4)	10.457 <sup>a</sup>	0.000
Disagree	112 (80.6)	119 (85.6)		
<b>Pregnant women should engage in light exercise</b>				
Disagree	13 (9.4)	23 (16.8)	1.575 <sup>a</sup>	0.118
Agree	126 (90.6)	114 (83.2)		
<b>Every pregnant woman should take advantage of the health center</b>				
Disagree	25 (18.0)	20 (14.4)	0.821 <sup>a</sup>	0.413
Agree	114 (82.0)	119 (85.6)		

**Table 4.54: Attitude of Mothers towards Antenatal and Postnatal Care in Intervention Group at Baseline and Endline continued**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>
<b>A woman can get pregnant as often as she wants</b>				
Agree	73 (52.5)	50 (36.0)	0.661 <sup>a</sup>	0.570
Disagree	66 (47.5)	89 (64.0)		
<b>There should not be age restrictions to getting pregnant</b>				
Agree	70 (50.4)	51 (36.7)	1.957 <sup>a</sup>	0.052
Disagree	69 (49.6)	88 (63.3)		
<b>Traditional care in pregnancy is more important than medical care</b>				
Agree	30 (21.6)	26 (18.8)	9.352 <sup>a</sup>	0.000
Disagree	109 (78.4)	112 (81.2)		
<b>It is better to give birth with a TBA than a health centre</b>				
Agree	27 (19.4)	19 (13.7)	11.278 <sup>a</sup>	0.000
Disagree	112 (80.6)	120 (86.3)		



#### **4.3.42 Attitude of Mothers towards Recommended Breastfeeding and Appropriate Complementary Feeding Practice in Intervention Group**

On mother's attitude regarding breastfeeding, more (82.7%) mothers at endline agreed colostrum is good for a baby's health, as against baseline (76.3%). About half (56.5%) of the mothers disagreed that a two month old baby could be given water at endline, compared with 39.6% at baseline. Most (83.5%) of the mothers at endline agreed that a baby should be breastfed on demand.

**Table 4.55: Attitude of Mothers towards Recommended Breastfeeding and Appropriate Complementary Feeding Practice in Intervention Group**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>
<b>The first breast milk that is yellowish in colour is good for a baby's health</b>				
Disagree	33 (23.7)	24 (17.3)	1.117 <sup>a</sup>	0.266
Agree	106 (76.3)	115 (82.7)		
<b>Introducing a baby to breast milk immediately after birth has benefits</b>				
Disagree	20 (14.4)	15 (10.8)	1.068 <sup>a</sup>	0.287
Agree	119 (85.6)	124 (89.2)		
<b>A baby can be given water after 2 months</b>				
Agree	84 (60.4)	60 (43.5)	1.440 <sup>a</sup>	0.152
Disagree	55 (39.6)	78 (56.5)		
<b>A baby can only be given water 6 months after birth</b>				
Disagree	59 (42.4)	46 (33.1)	0.834 <sup>a</sup>	0.408
Agree	80 (57.6)	99 (66.9)		
<b>A baby should be breastfed on demand</b>				
Disagree	36 (25.9)	23 (16.5)	0.271 <sup>a</sup>	0.787
Agree	103 (74.1)	116 (83.5)		

#### **4.3.43 Attitude of Mothers regarding Growth Monitoring in Intervention Group at Baseline and Endline**

At endline, there was an improvement in attitude towards growth monitoring. More (87.8%) mothers agreed that growth monitoring was very important at endline, as against 61.9% at baseline. There was a significant difference ( $t = -2.180$ ;  $p = 0.031$ ) between the endline and baseline attitude towards this variable. A greater proportion (85.6%) of mothers at endline agreed that growth monitoring helps discover hidden illnesses, compared to 59.0% at baseline. Regarding the importance of taking a baby for growth monitoring, more (85.5%) of mothers at endline agreed that it was vital, compared with 63.3% at baseline. Also, 83.5% of mothers at endline agreed growth monitoring should be done monthly for the first one year compared with 66.7% at baseline.

**Table 4.56: Attitude of Mothers regarding Growth Monitoring in Intervention Group at Baseline and Endline**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>
<b>Monitoring the growth of a baby is very important</b>				
Disagree	53 (38.9)	17 (12.2)	2.180 <sup>a</sup>	0.031
Agree	86 (61.9)	122 (87.8)		
Total	139 (100)	139 (100)		
<b>Growth monitoring can help discover if a baby has hidden illnesses</b>				
Disagree	57 (41.0)	20 (14.4)	0.360 <sup>a</sup>	0.719
Agree	82 (59.0)	119 (85.6)		
Total	139 (100)	139 (100)		
<b>It is important that a mother takes her baby for growth monitoring</b>				
Disagree	51 (39.7)	20 (14.5)	-0.867 <sup>a</sup>	-0.387
Agree	88 (63.3)	118 (85.5)		
Total	139 (100)	139 (100)		
<b>A baby must be weighed once every month for the first one year</b>				
Disagree	47 (33.8)	23 (16.5)	1.100 <sup>a</sup>	0.273
Agree	92 (66.2)	116 (83.5)		
Total	139 (100)	139 (100)		

#### **4.3.44 Attitude of Mothers regarding Oral Rehydration Therapy in Intervention Group at Baseline and Endline**

Most (81.3%) of the mothers agreed that Oral Rehydration Therapy (ORT) can save the life of a baby suffering from diarrhea at endline. There was a significant difference ( $X^2 = 2.796$ ;  $p = 0.006$ ) between the baseline and endline results. The proportion of mothers who agreed that ORT can help rehydrate a baby with diarrhea increased (69.1%) at endline, from 47.5% at baseline. More (73.2%) mothers at endline disagreed that only health workers can prepare ORT, as against 45.3% at baseline.

**Table 4.57: Attitude of Mothers regarding Oral Rehydration Therapy in Intervention Group at Baseline and Endline**

Variables	Baseline n (%)	End-line n (%)	X <sup>2</sup>	p-value
<b>ORT can save the life of a baby suffering from diarrhea</b>				
Disagree	74 (53.2)	26 (18.7)	2.796 <sup>a</sup>	0.006
Agree	65 (46.8)	113 (81.3)		
Total	139 (100)	139 (100)		
<b>There is no particular measurement for making ORT</b>				
Agree	82 (59.0)	41 (29.5)	0.360 <sup>a</sup>	0.719
Disagree	57 (41.0)	98 (70.5)		
Total	139 (100)	139 (100)		
<b>ORT does not help rehydrate a baby with diarrhea</b>				
Agree	73 (52.5)	43 (30.9)	1.291 <sup>a</sup>	0.199
Disagree	66 (47.5)	96 (69.1)		
Total	139 (100)	139 (100)		
<b>ORT can only be made by health workers</b>				
Agree	76 (54.7)	37 (26.8)	1.273 <sup>a</sup>	0.205
Disagree	63 (45.3)	101 (73.2)		
Total	139 (100)	138 (100)		

#### **4.3.45 Attitude of Mothers regarding Immunization in Intervention Group at Baseline and Endline**

Majority (81.3%) of the mothers at endline agreed that immunization should not be taken for granted, while 76.3% agreed at baseline. Fewer (56.8%) mothers at baseline disagreed that immunization should not be compulsory, with 75.5% with same perception at endline. Most (84.2%) of the mothers at endline agreed that a child who is immunized is not at risk of certain viral infections, while 76.3% agreed at baseline.

**Table 4.58: Attitude of Mothers regarding Immunization in Intervention Group at Baseline and Endline**

Variables	Baseline n (%)	End-line n (%)	X <sup>2</sup>	p-value
<b>The immunization of babies should not be taken for granted</b>				
Disagree	33(23.7)	26 (18.7)	1.340a	0.182
Agree	106(76.3)	113 (81.3)		
Total	139 (100)	139(100)		
<b>Immunization protects from infections and diseases</b>				
Disagree	16(11.5)	14 (10.1)	0.377 <sup>a</sup>	0.707
Agree	123 (88.5)	125 (89.9)		
Total	139 (100)	139 (100)		
<b>Immunization should not be compulsory</b>				
Agree	60 (43.2)	34 (24.5)	1.821 <sup>a</sup>	0.071
Disagree	79 (56.8)	105 (75.5)		
Total	139 (100)	139 (100)		
<b>A child who is immunized is not at risk of getting certain viral infections</b>				
Disagree	33 (23.7)	22 (15.8)	1.133 <sup>a</sup>	0.259
Agree	106 (76.3)	117 (84.2)		
Total	139 (100)	139 (100)		
<b>A baby's father must approve immunization before the baby can be immunized</b>				
Agree	73 (52.5)	60 (43.2)	1.684 <sup>a</sup>	0.094
Disagree	66 (47.5)	79 (56.8)		
Total	139 (100)	139 (100)		



#### **4.3.41 Practice of Mothers regarding Antenatal and Postnatal Care in Intervention Group at Baseline and Endline**

More (96.3%) mothers attended postnatal clinic at endline than at baseline (85.6%). There was a significant difference ( $X^2 = 3.544$ ;  $p = 0.001$ ) in attendance of postnatal clinic between endline and baseline. A larger proportion (89.1%) of mothers used the Primary Health Centre for antenatal and postnatal care at endline as against 1.6% at baseline. There was a significant difference ( $X^2 = 3.820$ ;  $p < 0.05$ ) between the facility used for antenatal care at baseline and endline. Over 64.5% of the mothers attended antenatal clinic more than seven times before delivery at endline; as against 3.2% at baseline. The proportion of mothers who had good practice on how to take care of themselves during pregnancy increased (80.5%) at endline compared to 66.1% at baseline.

Majority (92.3%) of the mothers delivered their child at a health facility compared to 64.7% at baseline. There was a significant difference ( $X^2 = 3.993$ ;  $p < 0.05$ ) between the baseline and endline place of delivery. Most (91.4%) of the mothers at endline started antenatal clinic in the first trimester, while 85.3% did same at baseline. There was a significant difference ( $X^2 = 3.772$ ;  $p < 0.05$ ) in the time the mothers started antenatal clinic at baseline and endline.

**Table 4.59: Practice of Mothers regarding Antenatal and Postnatal Care in Intervention Group at Baseline and Endline**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p- value</b>	<b>Remark</b>
<b>How a pregnant woman should take care of herself</b>					
Do not know	44 (32.4)	25 (18.0)	0.226 <sup>a</sup>	0.822	Not Sign.
Nothing	2 (1.5)	2 (1.5)			
Eat healthy meals	83 (61.0)	95 (68.3)			
Start taking folic acid	7 (5.1)	17 (12.2)			
<b>Other antenatal options asides health facility</b>					
Not applicable	12 (54.5)	108 (77.7)	1.254 <sup>a</sup>	0.224	Not Sign.
TBA	2 (9.1)	28 (20.1)			
Community Health Worker	6 (27.3)	2 (1.4)			
Mother/GrandMa	2 (9.1)	1 (0.7)			
<b>Mainly go to obtained antenatal care at</b>					
No antenatal visit	0 (0.0)	0 (0.0)	3.820 <sup>a</sup>	0.000	Sign.
Hospital	126 (98.4)	15 (10.9)			
Clinic	2 (1.6)	122 (89.1)			
<b>Makes decision on how to feed your baby</b>					
Nobody	4 (3.1)	36 (25.9)	4.067 <sup>a</sup>	0.000	Sign.
Self	121 (93.8)	103 (74.1)			
Spouse	1 (0.8)	0 (0.0)			
Grandmother of baby	2 (1.6)	0 (0.0)			
Health worker	1 (0.8)	0 (0.0)			
<b>Place of delivery</b>					
Home	49 (35.3)	10 (7.7)	3.993 <sup>a</sup>	0.000	Sign.
Clinic/Hospital	90 (64.7)	120 (92.3)			

**Table 4.59: Practice of Mothers regarding Antenatal and Postnatal Care in Intervention Group at Baseline and Endline continued**

<b>Variables</b>	<b>Endline n (%)</b>	<b>Baseline n(%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>Number of visits to health facility for postnatal care</b>					
1 – 4 times	105 (91.2)	30 (91.0)	0.526 <sup>a</sup>	0.603	Not Sign.
>4 – 8 times	10 (8.8)	3 (9.0)			
<b>How old baby was at first postnatal visit</b>					
0 – 2 weeks	97 (74.1)	84 (71.9)	12.989 <sup>a</sup>	0.000	Sign.
>2 – 4 weeks	22 (16.8)	22 (18.9)			
>4 – 6 weeks	7 (5.4)	6 (5.2)			
>6 – 8 weeks	2 (1.6)	5 (4.3)			
>8 weeks	3 (2.3)	0 (0.0)			
<b>Number of months of pregnancy by first ANC visit</b>					
Cannot remember	3 (2.3)	12 (8.6)	3.772 <sup>a</sup>	0.000	Sign.
>3months	110 (85.3)	127 (91.4)			
2-3 months	12 (9.3)	0 (0.0)			
1 month	4 (3.1)	0 (0.0)			
<b>Antenatal attendance during last pregnancy</b>					
No	20 (14.4)	5 (3.7)	3.544 <sup>a</sup>	0.001	Sign.
Yes	119 (85.6)	129 (96.3)			
<b>Number of ANC visits when pregnant (index child)</b>					
1-5	61 (56.0)	33 (19.5)	6.759 <sup>a</sup>	0.000	Sign.
6-10	13 (10.4)	99 (71.8)			
11-15	27 (21.7)	7 (5.0)			

#### **4.3.42 Practice of Mothers regarding Recommended Breastfeeding and Appropriate Complementary Feeding Strategies in Intervention Group at Baseline and Endline**

Majority (92.1%) of the mothers at endline used cup or plate to feed their baby complementary food as against the feeding bottle, while none used cup or plate at baseline. More (109) mothers at endline increased the breastfeeding of their child when he or she was sick, compared forty-nine (49) at baseline. More (63.3%) mothers started breastfeeding their baby immediately or less than an hour after birth at endline, than at baseline (54.7%). There was a significant difference ( $X^2 = 5.708$ ;  $p < 0.05$ ) between the duration before breastfeeding was initiated at baseline and endline.

Above two-thirds (80.6%) of mothers at endline had breastfed their child, compared to 73.4% at baseline. There was a significant difference ( $X^2 = 4.838$ ;  $p < 0.05$ ) between the endline and baseline responses. Most (89.9%) mothers at endline intended to breastfeed their baby up to twenty-four months, while 16.4% intended to do same at baseline. There was a significant difference between the baseline and endline responses to this variable.

**Table 4.60: Practice of Mothers regarding Recommended Breastfeeding and Appropriate Complementary Feeding Strategies in Intervention Group at Baseline and Endline**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>Utensil mostly used for drinking milk and other fluid</b>					
Do not know	100 (87.7)	0 (0.0)	0.217 <sup>a</sup>	0.828	Not Sign.
Feeding bottle	14 (12.3)	11 (7.9)			
Cup/plate	0 (0.0)	128 (92.1)			
<b>Frequency of breastfeeding or giving of more liquids to (index child) when ill</b>					
Less than usual	15 (17.0)	0 (0.0)	9.434 <sup>a</sup>	0.000	Sign.
More than usual	49 (55.7)	109 (50.7)			
Same as usual	24 (27.3)	26 (19.3)			
<b>Period after the birth of (index child) before breastfeeding</b>					
Do not remember	40 (28.8)	51 (36.7)	5.708 <sup>a</sup>	0.000	Sign.
More than an hour	10 (7.2)	0 (0.0)			
2-6 hours	13 (9.4)	0 (0.0)			
Immediately/less than an hour	76 (54.7)	88 (63.3)			
<b>Still breastfeeding (index child)</b>					
No	27 (19.4)	8 (6.3)	2.068 <sup>a</sup>	0.041	Sign.
Yes	112 (80.6)	119 (93.7)			
<b>Alternate breast when breastfeeding</b>					
No	71 (58.2)	54 (38.8)	1.737 <sup>a</sup>	0.085	Not Sign.
Yes	51 (41.8)	85 (61.2)			

**Table 4.60: Practice of Mothers regarding Recommended Breastfeeding and Appropriate Complementary Feeding Strategies in Intervention Group at Baseline and Endline continued**

Variables	Baseline n (%)	End-line n (%)	$X^2$	p-value	Remark
<b>Reasons for not initiating breastfeeding immediately</b>					
Not Applicable	12 (41.4)	84 (60.9)	0.618 <sup>a</sup>	0.543	Not Sign.
Mother ill	4 (13.8)	14 (10.1)			
Infant ill	1 (3.4)	2 (1.4)			
Infant premature	2 (6.9)	6 (4.3)			
Cultural reasons	2 (6.9)	0 (0.0)			
Cleaning up after birth	6 (20.7)	18 (13.0)			
Infant not brought immediately	0 (0.0)	6 (4.3)			
Mother's decision	2 (6.9)	4 (2.9)			
Insufficient breast milk	2 (6.9)	4 (2.9)			
<b>Ever breast fed (index child)</b>					
No	37 (26.6)	27 (19.4)	4.838 <sup>a</sup>	0.000	Sign.
Yes	102 (73.4)	112 (80.6)			
<b>Age intended to stop breastfeeding (index child)</b>					
No idea	12 (9.4)	0 (0.0)	18.814 <sup>a</sup>	0.000	Sign.
Less than 24 months	95 (74.2)	14 (10.1)			
24 months	21 (16.4)	125 (89.9)			

#### **4.3.43 Practice of Mothers regarding Growth Monitoring, Oral Rehydration Therapy and Immunization in Intervention Group at Baseline and Endline**

Most (54.3%) of the mothers at endline had taken their baby for growth monitoring less than a month ago, but only 9.8% had done same at baseline. There was a significant difference ( $X^2 = 5.234$ ;  $p < 0.05$ ) between baseline and endline results on this variable. Majority (80.6%) of the mothers at endline had taken their baby for growth monitoring; less than half (46.3%) had done same at baseline. Above half (60.1%) of mothers at endline administered oral rehydration therapy to their child when he or she had diarrhea, at baseline, 30.0% administered oral rehydration therapy when their child had diarrhea. At endline, most (93.6%) of the mothers had taken their baby for immunization, compared with 82% at baseline. There was a significant difference ( $X^2 = 4.271$ ;  $p < 0.05$ ) between baseline and endline responses to this variable.

**Table 4.61: Practice of Mothers regarding Growth Monitoring, Oral Rehydration Therapy and Immunization in Intervention Group at Baseline and Endline**

<b>Variables</b>	<b>Baseline n (%)</b>	<b>End-line n (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Remark</b>
<b>Last time index child was taken for growth monitoring</b>					
Never	23 (37.7)	0 (0.0)	5.234 <sup>a</sup>	0.000	Sign.
Last month	25 (41.0)	63 (45.7)			
2 months ago	3 (4.9)	0 (0.0)			
< 1 month ago	6 (9.8)	75 (54.3)			
3-5 months ago	2 (3.3)	0 (0.0)			
>5 months	2 (3.3)	0 (0.0)			
<b>Frequency of Growth Monitoring</b>					
Never	22 (39.3)	0 (0.0)	2.590 <sup>a</sup>	0.016	Sign.
Monthly	31 (55.4)	78 (56.5)			
Not often	3 (3.6)	57 (41.3)			
Every 3 months	1 (1.8)	3 (2.2)			
<b>Taken your baby for growth monitoring before</b>					
No	65 (53.7)	27 (19.4)	0.601 <sup>a</sup>	0.510	Not Sign.
Yes	56 (46.3)	112 (80.6)			
<b>Administered ORT when child had diarrhea</b>					
No	35 (70.0)	55 (39.9)	0.493 <sup>a</sup>	0.626	Not Sign.
Yes	15 (30.0)	83 (60.1)			
<b>Gone for immunization</b>					
No	25 (18.0)	8 (6.4)	4.271 <sup>a</sup>	0.000	Sign.
Yes	114 (82.0)	117 (93.6)			



Objective Four: To explore the effectiveness of BCC intervention strategies in improving the knowledge, attitude and practice of child survival strategies among mothers of children 0-24 months in Delta state of Nigeria

#### **4.4 Effectiveness of BCC Strategies between Intervention and Control Groups at Endline**

To investigate the difference in knowledge of respondents who had exposures to different strategies, the one-way Analysis of Variance (ANOVA) was used. The dependent variable was knowledge score while the factor variable had three levels (Aviara, Idumesha and Okpara Inland where the strategies of Audio-visual, Drama and Nutrition health talks were used respectively).

There was a significant difference between the knowledge from the three different strategies,  $p > 0.05$ , ( $F=50.261$ ,  $\text{sig} = 0.000$ ). The knowledge produced from the different strategies was not significantly different from each other.

The multi-comparison test among BCC strategies showed that there was a significant difference in knowledge between control and audio-visual aid, nutrition talks and community drama. Attitude at endline showed a significant difference in means of control and audio-visual aids strategy. There was also a significant difference between control and nutrition talk.

The average knowledge score of the control group ( $11.87 \pm 7.9$ ) was lower than that of the different BCC strategy groups' audio-visual ( $24.0 \pm 8.6$ ), drama ( $25.8 \pm 9.3$ ) and nutrition health talks ( $26.9 \pm 8.6$ ). There was a significant difference ( $F = 50.261$ ;  $p < 0.05$ ) between endline knowledge of mothers across all strategies. There was also a significant difference ( $F = 5.261$ ;  $p < 0.05$ ) between endline practice of mothers across all strategies. The Multi-comparison test among strategies showed that for the endline knowledge, there was a significant difference between control and audio-visual aid, nutritional talk and community drama. Endline attitude, control and audio-visual aid had significantly different means. The endline practice showed a significant difference between control and community drama.

**Table 4.62: Mean Knowledge, Attitude and Practice among Intervention Strategies and Control at Endline**

<b>Strategies and Community</b>		<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Control</b>	Knowledge	97	0.00	40.00	11.8660	7.94333
	Attitude	97	5.00	27.00	15.7835	5.08926
	Practice	100	3.00	13.00	7.3800	2.12146
<b>Aviara - Audio Visual Aid</b>	Knowledge	38	6.00	42.00	24.0263	8.61955
	Attitude	39	3.00	27.00	18.2051	5.59219
	Practice	42	1.00	15.00	8.3333	3.16742
<b>Idumesha - Drama</b>	Knowledge	44	7.00	43.00	25.8409	9.31102
	Attitude	42	4.00	24.00	16.4048	3.47857
	Practice	45	4.00	14.00	9.1333	2.29228
<b>Okpara - Community Drama</b>	Knowledge	49	1.00	41.00	26.8571	8.60717
	Attitude	50	1.00	23.00	15.5800	4.11116
	Practice	47	1.00	14.00	8.5106	3.31579

**Table 4.63 Comparison of Effectiveness of BCC Strategies between Intervention and Control Groups Endline**

<b>Variables</b>	<b>Control n (%)</b>	<b>Audiovisual n (%)</b>	<b>Drama n (%)</b>	<b>Nutrition talk n (%)</b>		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Poor Knowledge	63 (64.9)	8 (19.0)	5 (11.1)	7 (13.5)	Between Groups	10830.773	3	3610.258	50.261	0.000
Fair Knowledge	19 (19.6)	5 (11.9)	12 (26.7)	5 (9.6)	Within Groups	16090.118	224	71.831		
Good Knowledge	16 (15.5)	29 (69.0)	28 (62.2)	40 (76.9)						
Negative Attitude	6 (6.2)	3 (7.1)	1 (2.2)	2 (3.8)	Between Groups	193.568	3	64.523	2.891	0.036
Positive Attitude	91 (93.8)	39 (92.9)	44 (97.8)	50 (96.2)	Within Groups	4999.112	224	22.317		
Poor Practice	23 (23.0)	2 (4.8)	2 (4.4)	0 (0.0)	Between Groups	110.047	3	36.682	5.293	0.002
Fair Practice	72 (72.0)	7 (16.7)	18 (40.0)	17 (32.7)	Within Groups	1593.838	230	6.930		
Good Practice	5 (5.0)	33 (78.6)	25 (55.6)	35 (67.3)						

**Table 4.64: Tukey’s Multiple Comparisons of BCC Strategies and Control Group at Endline**

Tukey’s Multiple Comparisons of Strategies

Dependent Variable		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval		
					Lower Bound	Upper Bound	
<b>Knowledge</b>	Control	Aviara - Audio Visual Aid	-12.16034*	1.62198	.000	-16.3587	-7.9620
		Idumesha- Community Drama	-13.97493*	1.54047	.000	-17.9623	-9.9875
		Okpara Inland– Nutrition Talks	-14.99116*	1.48542	.000	-18.8360	-11.1463
	Aviara - Audio Visual Aid	Control	12.16034*	1.62198	.000	7.9620	16.3587
		Idumesha- Community Drama	-1.81459	1.87691	.768	-6.6728	3.0436
		Okpara Inland– Nutrition Talks	-2.83083	1.83200	.412	-7.5728	1.9112
	Idumesha- Community Drama	Control	13.97493*	1.54047	.000	9.9875	17.9623
		Aviara - Audio Visual Aid	1.81459	1.87691	.768	-3.0436	6.6728
		Okpara Inland– Nutrition Talks	-1.01623	1.76024	.939	-5.5725	3.5400
	Okpara Inland– Nutrition Talk	Control	14.99116*	1.48542	.000	11.1463	18.8360
		Aviara - Audio Visual Aid	2.83083	1.83200	.412	-1.9112	7.5728
		Idumesha- Community Drama	1.01623	1.76024	.939	-3.5400	5.5725
		Idumesha- Community Drama	-.62126	.87261	.892	-2.8799	1.6374
			Okpara – Nutrition Talks	.20351	.82245	.995	-1.9253

\*. The mean difference is significant at the 0.05 level.

**Table 4.64: Tukey’s Multiple Comparisons of BCC Strategies and Control Group at Endline continued**

Tukey’s Multiple Comparisons of Strategies

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Attitude	Control	Aviara - Audio Visual Aid	-2.42162*	.89572	.037	-4.7401	-.1031
		Idumesha- Community Drama	-.62126	.87261	.892	-2.8799	1.6374
		Okpara Inland – Nutrition Talks	.20351	.82245	.995	-1.9253	2.3324
	Aviara - Audio Visual Aid	Control	2.42162*	.89572	.037	.1031	4.7401
		Idumesha- Community Drama	1.80037	1.05053	.319	-.9188	4.5196
		OkparaInland – Nutrition Talks	2.62513*	1.00925	.048	.0128	5.2375
	Idumesha- Community Drama	Control	.62126	.87261	.892	-1.6374	2.8799
		Aviara - Audio Visual Aid	-1.80037	1.05053	.319	-4.5196	.9188
		Okpara Inland- Nutrition Talks	.82476	.98880	.838	-1.7347	3.3842
	Okpara Inland- Nutrition Talks	Control	-.20351	.82245	.995	-2.3324	1.9253
		Aviara - Audio Visual Aid	-2.62513*	1.00925	.048	-5.2375	-.0128
		Idumesha- Community Drama	-.82476	.98880	.838	-3.3842	1.7347
	Control	Aviara - Audio Visual Aid	-2.42162*	.89572	.037	-4.7401	-.1031
		Idumesha- Community Drama	-.62126	.87261	.892	-2.8799	1.6374

\*. The mean difference is significant at the 0.05 level.

**Table 4.64: Tukey’s Multiple Comparisons of BCC Strategies and Control Group at Endline continued**

Tukey’s Multiple Comparisons of Strategies

Dependent Variable		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval		
					Lower Bound	Upper Bound	
<b>Practice</b>	Control	Aviara - Audio Visual Aid	-.95333	.48404	.203	-2.2060	.2993
		Idumesha- Community Drama	-1.75333*	.47254	.001	-2.9762	-.5304
		Okpara Inland- Nutrition Talks	-1.13064	.46555	.075	-2.3354	.0742
	Aviara - Audio Visual Aid	Control	.95333	.48404	.203	-.2993	2.2060
		Idumesha- Community Drama	-.80000	.56479	.490	-2.2616	.6616
		Okpara Inland- Nutrition Talks	-.17730	.55896	.989	-1.6238	1.2692
	Idumesha- Community Drama	Control	1.75333*	.47254	.001	.5304	2.9762
		Aviara - Audio Visual Aid	.80000	.56479	.490	-.6616	2.2616
		Okpara Inland- Nutrition Talks	.62270	.54903	.669	-.7981	2.0435
	Okpara Inland- Nutrition Talks	Control	1.13064	.46555	.075	-.0742	2.3354
		Aviara - Audio Visual Aid	.17730	.55896	.989	-1.2692	1.6238
		Idumesha- Community Drama	-.62270	.54903	.669	-2.0435	.7981
Control	Aviara - Audio Visual Aid	-.95333	.48404	.203	-2.2060	.2993	
	Idumesha- Community Drama	-1.75333*	.47254	.001	-2.9762	-.5304	

\*. The mean difference is significant at the 0.05 level.

## CHAPTER FIVE

### DISCUSSION, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Demographic and Socioeconomic Characteristics of Mothers

The demographic characteristics of mothers showed that the mean age  $27.8 \pm 5.6$  of mothers in this study is in line with the age for reproduction among women; there were however cases of teenage pregnancy in the population. The teenage group was very low given that majority of the mothers were Christians which is a religion known to frown at child marriage and teenage pregnancy. This observation about the study population is similar to that reported by Etokidem and Johnson (2016) on mothers in Cross River State where over 90.0% were Christians and a majority of them were age 20 to 44 years old. In a similar report in India, large proportions of pregnant women were aged 15-30 years and were mostly Muslim (Khan *et al.* 2012). This draws attention to how religious practices can influence child survival strategies as the low occurrence of teenage pregnancy in the study can be attributed largely to the fact that all of the mothers were Christians.

The socioeconomic characteristics of the study population showed that most households had poor economic backgrounds, with low levels of education and generally low standards of living. Poverty has been indicated as a major driver for lack of access to basic amenities and resources which can ensure the health and wellbeing of a child. Hence poverty is known to be a social-economic determinant of child survival. Mehrotra *et al.* (2000) reported that the relative neglect of basic health care and education left many people in the developing world uneducated, unhealthy, and poor. Looking closely at the hours spent at work every week and the income received monthly, the mothers could be ranked as under-employed and poor.

Although the mothers could not provide adequate information on the actual income of their husbands, it could be deduced from their occupation as most of them were businessmen or artisans; that most of the study population households lived on less than two dollars a day. This data already sets these families up for food insecurity, poor sanitation, and hygienic conditions,

and other biological determinants of child survival. Attention needs to be given to improving the economic status of households in rural areas across Nigeria, which will in turn mitigate the cases of under-five deaths.

A country like China has succeeded in lifting over 82 million households from poverty in the space of 6 years (Xinyu, 2019 & Gupta, 2020), thereby indirectly causing positive effects in the rate of under-five mortality which fell from over 60 deaths per 1,000 live births to 7.4 deaths per 1,000 live births in the same period (World Bank, 2019). Wang and Zhou (2020) opined that the poverty alleviation strategy of the Chinese government has been largely successful and the major health indicators are now better than the average of all middle- and high-income countries. Improving child survival in Delta State is likely to be achieved through a multi-sectoral approach to development and the economic status of women and the population.

### **5.1.1 Availability of Community and Family Support Systems for the Practice of Child Survival Strategies in Delta State**

This study showed that there were structures at the community level health system that supported mothers in their practice of child survival strategies. Over 80% of the mothers reported that they delivered their babies at the clinic or hospital, and over 85% had gone for immunization of their infants. This antenatal attendance level is higher than the 45.5% national prevalence of underutilization of antenatal care reported by Adewuyi *et al.* (2018). Although the structures for providing health care support were available, there was still a gap in mothers taking advantage of available resources during pregnancy. The patronage level for antenatal services could be linked to the perceived lack of appreciation and understanding of the importance of these services. A study of factors influencing the utilization of antenatal care services in Ghana reported that mothers who were traders, students, and civil servants patronized antenatal services more compared with those involved in a business, farming, and other occupations (Konlan *et al.*, 2020).

The pregnant and lactating women were not able to successfully link antenatal attendance to the survival and healthy development of their children. This is why more education needs to be



provided in this regard to make caregivers understand the benefits of using these services far outweigh nonuse.

Also, health workers need to motivate pregnant mothers in ensuring they deliver topnotch service during antenatal visits so they can attract more patronage. Primary Health Centres should be made functional 24 hours of the day and accessible 7 days of the week. One of the reasons given for not using primary health facilities for delivery was that mothers were not sure if they would meet a health worker at the health centre on arrival. This assertion is backed by the report presented in Konlan *et al.* (2020) that women who reported having concerns that there will be no midwife available made less than required visits to ANC. Most of the communities were having health workers showing up for work only on immunization days with the absence of any qualified personnel to attend to various health challenges in the communities on other days. This has made many community dwellers rely more on secondary and in some cases tertiary health facilities for their health care. Thus most of the mothers attend the General Hospitals and tertiary institutions for their health needs during antenatal and childbirth. Liu *et al.* (2018) reported that the issue of 'Medical staff to be an influential factor throughout all stages of pregnancy care. Medical skill and personal relation were the most important aspects of the medical staff that mostly influenced the choice. Lack of competence (skill) of staff at lower-level facilities often caused respondents to choose higher-level facilities.

Half (50.7%) of the mothers reported they had received information and education on pregnancy as teenagers. This is slightly lower than the proportion (63.4%) who reported that they received the recommended care components during ANC in northern Jordan (Hijazi *et al.*, 2018). Amongst those who had information on pregnancy as teenagers, more than half reported their mothers educated them. This sounds impressive on the surface, but digging deeper showed that the information provided by mothers to their teenage daughters inspired fear as against helping them prepare for motherhood. Information about getting pregnant immediately a man has sex with a girl were spread by mothers in a bid to reduce teenage pregnancy and ensure their daughters focused on their education and avoided any foul play from their male counterparts. Although this could be perceived as helping to prevent teenage pregnancy, it has not been effective in curbing teenage pregnancy in rural areas (Mekunyei, *et al.*, 2020). A WHO (2014)

report showed that the global adolescent birth rate was 49 per 1000 girls aged 15 to 19 years old; while the rate of teenage pregnancy was reported as 18.1% by the World Bank (2018).

A majority (95.8%) of the mothers reported they benefitted from health education during antenatal visits to health facilities. This is higher than the proportion (67%) in the NDHS (2018) report of women who received antenatal education from skilled health workers. A study in Ethiopia also reported a high proportion (86.0%) of women who received antenatal care and 51.0% had done 4 or more visits (Sibely *et al.*, 2014). The antenatal attendance in this study did not meet the required number of times a pregnant woman is required to attend, which is eight times as recommended by WHO (2016). Hence, their report of benefiting from health education would be referring to the once or twice they attended an antenatal clinic. Low level of attendance of antenatal clinic could have influenced the level of knowledge and practice of child survival strategies by the mothers which was quite poor at baseline. A UNICEF (2019) report indicated that women receiving at least 4 antenatal care visits vary greatly between countries, ranging from 21.0% in countries in sub-Saharan Africa to 90.0% in countries across regions including Latin America and the Caribbean and European regions. Further enquiry showed that for most mothers, antenatal attendance was based on a free schedule and not necessarily a commitment to attend. These women had to choose between going to trade on market days or going to the farm during the farming season and attending antenatal clinic. Since their livelihoods depend majorly on these occupations (trading and farming); it is usually a tough decision for these mothers. Gubhaju and Matsumura (2001) reported that women in waged labour and service were more likely to attend antenatal clinic. The women in this study were mostly businesswomen and full housewives. A study in Central Nepal reported that nearly 81.0% of women engaged in service received antenatal care, compared with only 34.7% of women in agriculture (Pandey and Karki, 2014).

Mothers at Okpara Inland had a slightly different disposition towards antenatal and postnatal clinic days. The women arrived early in the morning and waited patiently for the matron and other health workers to arrive. It was also observed that this centre had at least two health workers present on non-antenatal or postnatal clinic days. The centre also served the community as a reliable place to seek treatment. The clinics were functional; they had patients on admission and out-patients in the clinic. This was quite different from the observation at Aviara and

Idumesha. The fact that women in Okpara Inland were more educated compared to their counterparts in Aviara and Idumesha may be an important factor in the difference in their health-seeking behaviour. Adedokun and Yaya (2020) reported that results from a study of mothers' health-seeking behaviour for their children showed that children whose mothers have primary and secondary or higher education are more likely to receive measles vaccine and seek medical care whenever they have fever or cough and diarrhoea. This indicates that education plays a significant role in mothers' healthcare-seeking behaviour for their children.

When asked the topics covered during antenatal visits, less than half of mothers had over 5 topics listed; only 2.7% received comprehensive coverage of important topics. The topics listed as options on the questionnaire were: Routine Antenatal Care; labour and delivery preparations, how to care for a baby, initiating breastfeeding, infant feeding and infant care, under-five care, postnatal care, nutrition for mother during pregnancy, malaria, HIV&AIDS prevention and transmission, VCT, PMTCT, etc. This confirms the poor antenatal attendance by pregnant women. The skill level of health workers in providing comprehensive information on child survival strategies cannot be overlooked. ANC also provides women and their families with appropriate information and advice for a healthy pregnancy, safe childbirth, and postnatal recovery, including care of the newborn, promotion of early, exclusive breastfeeding, and assistance with deciding on future pregnancies to improve pregnancy outcomes (Lincetto *et al.*, 2012). A good combination of effective communication skills, the adoption of more interactive training methodology and improved ANC will improve the knowledge, attitude and practice of child survival strategies among mothers. While the provision of health information during antenatal is not in doubt, it is the practice of these strategies that are being examined. Mothers displayed an awareness of most of the topics but could not give positive responses when it came to the issue of practice. There needs to be an improvement in mothers' practice of knowledge received, and this will only happen when the community and all its stakeholders show commitment to supporting child survival strategies.

The report indicated that all (100%) the women demonstrated high knowledge about exclusive breastfeeding. This study also showed the low practice of exclusive breastfeeding and early initiation of complementary foods among women. This study is also in tandem with the report of study by Asare *et al.* (2018), where a lower proportion (66.0%) of mothers practised exclusive

breastfeeding. Therefore, an acknowledgement that infant feeding information which was provided did not result in the improved practice of infant and young child feeding guidelines at baseline. When asked about vitamin A administration to the infant, about a third reported that their infant had not received vitamin A six months after birth. This should be part of routine services of the health facilities. The goal should be to educate mothers to a level where they begin to demand such services due to their knowledge of the need for their infants to have it. In a WHO report, Manary *et al.* (2012) opined that Vitamin A supplements should be delivered to children 6–59 months of age twice yearly, during health system contacts. This should be marked on the child health card, or integrated into other public health programmes aimed at improving child survival, such as polio or measles national immunization days, or biannual child health days delivering a package of interventions such as deworming, distribution of insecticide-treated mosquito nets and immunizations.

The mothers attested to the fact that they received education on infant feeding and care during antenatal clinics, but the method of disseminating such information might not have been effective enough to provoke their behaviour change. This is similar to the observation of Etokidem and Johnson (2016) in Cross River State where it was observed that the most common source of child survival strategies information was health talks at a health facility. Most services required for standard antenatal clinics were still not offered to expectant and lactating women. This draws attention to the need for more training and awareness building to equip the health workers at the community level with new skills to effectively execute their responsibilities, and to empower women to demand services.

In this study, the most popular source of support for lactating and expectant women besides the healthcare workers was their mothers (grandmother of index child). This could pose a challenge of conflicting opinions when making choices concerning the nutrition and health of the infant; especially if the mother upholds unorthodox or traditional methods. In a study of grandmothers' influence on child care in India, Sharma and Kanani (2006) reported that the presence of grandmothers appeared to favour some desirable practices such as active feeding of complementary foods and utilization of Anganwadi services. It was observed that most of the grandmothers helped the mothers more in childcare activities and less in household work (playing with the child, keeping the child clean and feeding him/her). There is the need to create

awareness for more fathers to be involved in the care of their children, to provide psychological and emotional support for the mothers (their wife).

There was a general problem of lack of electricity supply at the Primary Health Centre in all participating communities. This contributes to the limited use of these facilities by mothers for childbirth, especially at night. Also in all cases, health workers had to travel some distance to retrieve vaccines from the available cooling facility in nearby towns with better access to electricity. The cost of this additional expense is then borne by mothers who have brought their infants for immunizations, as they have to pay a token to get their children immunized. A mother who does not have a token of a hundred naira (N100) or one hundred and fifty naira (N150) might decide not to attend the postnatal clinic, thereby postponing the date for her child to receive the lifesaving vaccine. Adair-Rohani *et al.* (2013) opined that the immunization policy faces an energy challenge and that the WHO has projected that vaccine refrigeration capacity needs to expand 8- to 10-fold by 2025 to meet the vaccine needs of a growing global population. Even when the lack of electricity is not an outright barrier to services, the presence of electricity can improve the range of potential primary care interventions.

### **5.1.2 Knowledge and Attitude of Health Workers on Child Survival Strategies**

It is expected that the Health workers in Primary Health Centres should be highly knowledgeable and skilled professionals with information on child survival strategies at their fingertips. This was the case among the health workers in this study. Knowledge and attitude of health workers on child survival strategies were good, meaning communities could rely on the health workers for correct knowledge and guidance. The quality of personnel will affect the quality of the information provided to the mothers and the method used to provide the information. Hijazi *et al.* (2018) in a study of determinants of antenatal care attendance among women in northern Jordan, reported that the highest percentage of adequate ANC attendance were among women who were often treated in a humane, respectful, supportive environment and those who were able to discuss their health problems/concerns with healthcare providers.

The minute gap in knowledge was somewhat demonstrated in the response received for issues that related to exclusive breastfeeding and initiation of complementary feeding. Some health

workers did not see any problem with mothers giving their infants water at 2 months old; which contradicts the WHO guidelines for exclusive breastfeeding. Without paying attention to the hygienic impact some health workers still considered feeding bottles as best utensil for feeding babies as against plate and spoon. The administration of ORT was another area that showed a gap in knowledge among health workers. Some health workers insisted that a mother could not make ORT for her baby, implying they must come to the clinic to get it administered. Such information contradicts child survival strategies. Uchendu *et al.* (2011) in a study of pre-hospital management of diarrhoea reported a reasonably high level of access to ORT fluids, with as many as 73.1% of caregivers reporting use of an ORT fluid at home before hospital presentation.

In most Primary Health Centres (PHC) visited, the matron and other health workers only came to work on antenatal and immunization days. On the remaining days, one or two CHEWS or health officers show up to open the PHC for some hours in the day. During this study, it was observed that this lack of commitment had driven most women to patronize quacks and Traditional Birth Attendants (TBAs) who were readily available and more reliable. This was also attested to by one of the matrons interviewed. *"The thing is this place was not functioning for some time. I would say they were not coming because they felt that if they come they don't meet people always, so they resorted to one quack nurse somewhere."* So, instead of going to the health centre and not being sure of meeting the matron, they would rather go to the TBA or quack nurse. Stanciole and Huber (2009) reported that other important factors that limit access to health workers include absenteeism, lack of or inhospitable infrastructures, unwelcoming staff and out-of-pocket expenditures on direct (e.g. user fees and informal payments) and indirect (e.g. transport, loss of opportunity and absence from work) costs. Attention has to be paid to these challenges to ensure renewed trust and confidence in the Primary Health Care System in Delta State.

It was also noted in this study that the lack in manpower to attend to the number of women who needed antenatal and postnatal services had relegated counselling to the background, if not to nonexistence. Health workers were outnumbered by demand for their services, so they just gave a ten to fifteen minutes health talk during antenatal clinic days and went on to provide services like immunization, circumcision, weighing and other general demands. They did not have the time or space to provide one-on-one counselling to mothers who might have needed such

services. Mallick *et al.* (2020) reported that while almost all facilities in Haiti reported that counselling on breastfeeding was a routine practice during ANC, only 4% of both urban and rural clients were observed to have received counselling during ANC and reported receiving it. There is little or no follow up on the progress in a child's growth to identify underlying illnesses or infections, until there is a full-blown illness and the child is brought in sick. UNICEF (2019) reported that the lowest levels of antenatal care are observed in sub-Saharan Africa and South Asia. Studies that have examined the quality of antenatal counselling suggest that adequacy of information provided is low with less information-sharing than guidelines recommend (Telfer *et al.*, 2002; Senaratha *et al.*, 2007).

### **5.1.3 Mother's Knowledge, Attitude and Practice of Child Survival Strategies in Delta State**

The knowledge, attitude and practice of child survival strategies of the mothers at baseline were found to be generally poor. At baseline, the average knowledge score ( $18.3 \pm 9.5$ ) of mothers in the intervention group was fair. There was no significant difference in the mean attitude score ( $t = -0.402$ ,  $p = 0.688$ ) towards child survival strategies. This could be indicative of the fact that there were some challenges with the quality of the information provided at the primary health centre and the method of information dissemination was rather ineffective. The results in a similar study by Oladoyinbo and Opadoyin (2015) reported better knowledge of mothers in Ijebu-Ode where 91.2% of the mothers had adequate knowledge of exclusive breastfeeding and its benefits. However, only 19% of practised exclusive breastfeeding. Based on reports shared earlier, mothers did not attend the antenatal clinic the required number of times and did not have access to counselling during pregnancy. The method of information dissemination during antenatal was mainly a short talk by the health worker after which general services were provided. This method did not inspire behaviour change or encourage interactions between the health worker and the mothers.

There was an improvement in the knowledge score of mothers' post-intervention in Delta State. Observations made at endline showed higher mean knowledge score (Mean  $\pm$  SD =  $25.7 \pm 8.9$ ) in the intervention group compared to the control group (Mean  $\pm$  SD =  $11.9 \pm 7.9$ ). There was a significant difference ( $t = -12.370$ ,  $p < 0.05$ ) between the mean knowledge score of the intervention and control groups. This is indicative of a positive effect of the intervention on mothers'

knowledge of child survival strategies. The results from intervention communities showed that the behaviour change communication methods introduced had a positive effect in improving good knowledge of mothers on child survival strategies at endline, when compared to baseline. There is still room for improvement since a large proportion of the population had fair and poor knowledge post-intervention. This is however consistent with many research findings (Sriram *et al.* 2013; Akeredolu *et al.* 2014; Sholeye *et al.* 2016) which reported the knowledge of mothers to be fair or high after the intervention. The results of this study also aligns with the reports of a study where 68.7% of mothers in Enugu State had good knowledge towards infant feeding, while only 22.4% had the adequate practice of infant feeding (Sanusi *et al.* 2016).

The use of more innovative approaches in information dissemination with the goal of inspiring behaviour change resulted in better knowledge scores. The use of interactive teaching methods, visual aids and drama instigated interest and longer attention span. Mothers were able to ask questions, share their perspectives in a nonjudgmental space and had the opportunity to get counselling after each antenatal education session. Akinwaare (2015) in a study of the attitude of pregnant women towards group health talk during antenatal noted that the health talk has changed the health behaviour of most (94%) of the client, and this could be responsible for the majority (98%) of them coming early to the antenatal clinic in order not to miss the health talk, and most (92%) of them participate well during the health talk.

In this study, most (74.8%) mothers at end-line had heard of exclusive breastfeeding and about two thirds (86.3%) knew the recommended duration. Mbada *et al.*, (2013) in a study amongst mothers in a semi-urban part of Nigeria reported 88.0% of mothers who had heard of exclusive breastfeeding. Etokidem and Johnson (2016) reported in their study that majority (76.0%) of women in Cross River State were aware that breastfeeding should be commenced within the first hour of birth among other guidelines. A similar study of breastfeeding practices in Ghana reported 93.0% correctly stated that exclusive breastfeeding is feeding infant for six months with only breast milk (Asare *et al.*, 2018). This is similar to the proportion that had adequate knowledge on exclusive breastfeeding from a study carried out in Ethiopia by Tadele *et al.*, (2015) where it was reported that "93.6% of participants had heard about exclusive breastfeeding and only 34.7% were knowledgeable about the recommended duration." In another study at Ambo Ethiopia, 90.8% of mothers were knowledgeable about exclusive breastfeeding (Zenebu,



2015). Although these studies showed higher proportions of mothers who had heard of exclusive breastfeeding compared to respondents in this study in Delta State; it could be confirmed that there was an improvement in knowledge and behaviour of mothers which is concurrent with other studies. This was however less than what was reported in a study in Ethiopia where "89.5% had a positive attitude, but only 59.3% believed that only exclusive breastfeeding is enough for a child up to six months" (Tadele *et al.*, 2016). Maeza *et al.*, (2015) in their study also reported a higher proportion (97.5%) of mothers who had positive attitudes towards exclusive breastfeeding.

More (87.8%) mothers at endline believed that monitoring the growth of a baby was very important in comparison with baseline (61.9%) and this was significantly different ( $X^2 = 2.180^a$ ;  $P < 0.05$ ). A greater proportion (85.6%) of mothers at endline agreed that growth monitoring could help discover if a baby had hidden illnesses, as against baseline (59.0%). The proportion of mothers who agreed that oral rehydration therapy could save the life of a baby suffering from diarrhoea also increased (81.3%) at endline, compared to 46.8% at baseline with a significant difference ( $X^2 = 2.796^a$ ;  $P < 0.05$ ). This is similar to the findings of Etokidem and Johnson (2016) in Cross River State where 82.0% of the mothers knew children should be given salt and sugar solution when they have diarrhoea. The key improvement on the baseline at endline is likely as a result of the change in information dissemination methods used during intervention. The design of behaviour change strategies that got mothers more interested in antenatal attendance and gave them opportunities to interact with the health educator provided a boost in practice and demand for services.

More mothers had positive attitudes post-intervention, compared to baseline. There was a significant difference ( $t = 4.182$ ;  $P < 0.05$ ) between the mean attitude score at baseline and endline. Also, the proportion of mothers with positive attitudes in the intervention group was greater than control group ( $t = 2.673$ ;  $P < 0.05$ ). A large proportion (96.3%) of mothers attended antenatal clinic when they were pregnant, while the majority (92.3%) delivered their baby at a health facility (Primary Health Centre or General Hospital). This observation is higher than the report of a similar study in Eastern Ethiopia where it was reported that more than two-thirds (69.5%) of mothers had a history of antenatal care during their last pregnancy and 51.5% of mothers had given birth at a health institution (Semahegn *et al.*, 2014). A World Health

Organization (2015) report also documented lower antenatal care coverage in Bangladesh (25.0%), Pakistan (37.0%) and Nepal (50.0%).

There was a marked improvement in health facility use for antenatal post-intervention. The observation also shows that when the mothers' experience during antenatal is more friendly and engaging, there is the likelihood for increased antenatal attendance and willingness to adopt information received. The behaviour change strategy used in designing this intervention paid attention to the socio-economic, cultural and educational status of the mothers and ensured an emotional connection to inspire the practice of strategies. It could be argued that with longer exposure to the intervention, there is the possibility of achieving a greater proportion of good practice by mothers. For an intervention that lasted three months to make such a difference, if adopted as the modus operandi at all primary health centres, this strategy tends to positively impact child survival in Nigeria. In this study, the gap between knowledge was bridged through the use of innovative behaviour change strategies in information dissemination to pregnant and lactating women.

This study also revealed that more than half (63.3%) of the mothers reported they initiated breastfeeding immediately or less than an hour after delivery. This is slightly higher than the NPC and ICF (2019) reported proportion (44.5%) of mothers who initiated breastfeeding within an hour in Delta State. This could be as a result of the inclusion of mothers in urban areas of the State in the NDHS study. Asare *et al.*, (2018) reported a similar result of 63.4% of mothers who initiated breastfeeding within the first hour after delivery. In another study, Rahalkar *et al.*, (2014), reported that only 50.6% of babies were breastfed within one hour which was lower than the current study. The initiation of breastfeeding immediately or less than an hour after birth is a key guideline in ensuring child survival as it encourages quick build of the infant's immune system. The reasons that were given for not initiating breastfeeding in this study mostly lie in the hands of the health workers in charge of delivery. The time it takes to clean up a baby before handing over to the mother seems to have affected the immediate initiation of breastfeeding and skin-to-skin contact between mother and infant.

Proulx and Aboud (2014) in a study in the Solomon Islands reported a higher proportion (97.0%) of mothers initiating breastfeeding in the first hour of birth. The same study showed that 48% of mothers planned to breastfeed until their child was two years or older. However, in this study, a

larger proportion (89.9%) intended to breastfeed their baby for twenty-four (24) months. Although this looks like a very good report, there is a need to follow up to ensure that adequate complementary food is provided for the child. This is to ensure that the benefits of exclusive breastfeeding are not lost due to inappropriate complementary feeding. Mothers also need to understand the investment and sacrifices required especially in time to ensure they keep their commitment to breastfeeding for 24 months.

The proportion of mothers who had heard of growth monitoring increased (80.6%) at endline, compared to baseline (46.3%). This will hopefully increase demand for growth monitoring services at the primary health centre and get mothers to pay more attention to their child's growth curve. Once this is achieved, then the likelihood of malnutrition and hidden illnesses will begin to reduce and in so doing improve child survival in these communities. This growth monitoring awareness is higher than what was reported in Cross River State where 20.0% of mothers knew the frequency of growth monitoring (Etokidem and Johnson, 2016).

#### **5.1.4 Effectiveness of Behaviour Change Communication Strategy in Improving Mothers' Knowledge, Attitude and Practice of Child Survival Strategies in Delta State**

Social Cognitive Theory played a huge role in ensuring an effective behaviour change communication strategy in this study. Paying attention to the theory in designing education and communication methods was key to the success of the nutrition education methods used. The results of this study showed that the behaviour change communication strategy had a positive effect on mothers in the intervention group as earlier observed by other researchers (Lutter *et al.*, 1997; Morrow *et al.*, 1999; Bang and Reddy, 2005 and Haider *et al.*, 2009). There was an increase (59.7%) in knowledge regarding colostrum at endline, compared to baseline (7.2%). This is corroborated in a study where it was documented that "after health education, there is an increase in the knowledge of mothers regarding colostrum feeding and exclusive breastfeeding (Akkamamba *et al.*, 2017).

This study has shown that the intervention communities – Aviara, Idumesha and Okpara Inland – had higher knowledge scores than control communities – Irri, Ute-Okpu and Orhoakpo and this was significantly different ( $F = 50.261$ ;  $p < 0.05$ ). The change in education strategy aimed at

behaviour change as against information dissemination yielded positive results. The focus on key practices during the three months intervention increased knowledge of the mothers. Mothers in the intervention group were now more interested in attending the antenatal clinic as it was more engaging and interactive. The training method was more mother focused and gave room for counselling tailored to the individual needs.

More (79.1%) mothers in the intervention group knew the dangers of malaria than their counterparts in the control group (24.8%). Understanding the danger of malaria during pregnancy will encourage a mother to sleep under the mosquito treated nets even though it feels inconvenient as reported at baseline. The mothers who knew the benefits of colostrum were also more (59.7%) in the intervention group than in the control group (1.0%). These improvements go a long way to impact on the practice of these strategies as mothers had a better understanding of the benefits of colostrum. Sobo *et al.* (2016) in a study on the knowledge and practice of mothers on child survival strategies in Odeda Local Government Area of Ogun State reported a higher proportion (73.0%) of mothers fed their children with colostrum.

An increase in mothers who now know the benefits of colostrum will also mean an improvement in babies who get fed this rich meal; thereby boosting the immune system of their children. In a study of the knowledge and practice of child survival strategies among mothers in Itu, Edet *et al.*, (2020) the observations reported were similar to that of this study. Most of the mothers had adequate knowledge of child survival strategies including 69.57% (growth monitoring), 67.90% (oral rehydration therapy) and 79.39% (exclusive breastfeeding).

As regards the attitude of mothers regarding child survival strategies, a larger proportion (87.8%) of mothers in the intervention group believed that growth monitoring was important and could help discover hidden illnesses (85.6%), compared with those in the control group (65.3%) and (47.5%) respectively. This is higher than the report of Edet *et al.* (2020) that most of the mothers in a study at Itu had adequate knowledge of CSS including 69.57% (growth monitoring), 67.90% (oral rehydration therapy) and 79.39% (exclusive breastfeeding). There was a significant difference ( $P < 0.05$ ) between the group of the behaviour change communication methods in improving the attitude of mothers regarding child survival strategies.

The practice of mothers in the intervention group regarding child survival strategies was also evidently better than those in the control group. There was a significant difference ( $F=5.293$ ,  $Sig. = 0.002$ ) between the practice of mothers in the intervention and control groups. There is no doubt that effective behaviour change communication strategies backed with the right communication theories can yield marked improvement in knowledge, attitude and practice of child survival strategies of mothers. Sobo *et al.* (2016) reported that about a quarter (26%) of the mothers in a study on the knowledge and practice of mothers on child survival strategies in Odeda Local Government Area of Ogun State had adequate knowledge, 64% had moderate knowledge and about one-tenth (9.5%) of the mothers had poor knowledge on child survival strategies. had adequate practice, about 28% had moderate practice and more than half (54.9) had a poor practice of child survival strategies. More than a quarter (33%) of the respondents initiated breast milk before one hour while more than half (67%) initiated breast milk after one-hour of delivery.

## **5.2 CONCLUSION**

Although community and family support systems were available, more awareness needs to be created to ensure these resources are maximized. Most of the Primary Health Centres (PHC) visited did not have any source of electricity because the communities in which they are situated do not have this service. This draws attention to the link between access to basic amenities and access to primary healthcare across communities. To encourage antenatal attendance, mothers need to understand the benefits of this practice to the health and wellbeing of their unborn child. At Aviara and Idumesha, the service of a town crier had to be sourced during antenatal and postnatal clinic days to remind mothers to attend clinic either for immunization or prenatal care. The women were also interested in incentives (gifts and monetary reward) for attending the training sessions. This shows that a lot more work has to be done in changing attitudes and practice from the entitlement mentality to a demand-driven process; where the mothers are interested and committed to ensuring the health and wellbeing of their infants as against seeking immediate and transient rewards to do same.

Health workers had high knowledge and positive attitude regarding child survival strategies. There was however an obvious gap in manpower capacity and availability of skilled professionals at the primary health level. There were improvements in the knowledge, attitude and practice of mothers with children 0-24months post-intervention. It is evident from this study that there is a need for increased knowledge of child survival strategies amongst mothers in Delta State. A combination of all behaviour change communication methods is the most effective way to improve the knowledge, attitude and practice of mothers. Although all three BCC interventions were effective in improving KAP of CSS, drama was observed to be the most effective in improving practice.

### **5.3 RECOMMENDATIONS**

From the observations made in this study, the following are recommended:

- A combination of the three BCC methods should be adopted in educating mothers to improve their KAP of CSS by the Health Workers. However, they can be used interchangeably in the same location.
- The Federal Government of Nigeria through the Local Government needs to pay more attention to the infrastructural upgrade of primary health facilities across the country; especially provision of water and electricity.
- Gadgets like television, video players, generators, or solar panels, etc., should be made available
- Government at all levels should seek ways to reduce the level of poverty to empower women economically so they can be better positioned to practice child survival strategies.
- Awareness using BCC should be created to encourage more fathers to be involved in the care of their children to provide psychological and emotional support for their spouses
- Periodic training should be organized for healthcare workers to improve their knowledge and skill for improved service delivery on CSS.
- Traditional Birth Attendants should also be trained on child survival strategies as their services are been sought by pregnant and lactating women in communities in Delta State.

- Attention has to be paid to ensuring that all girls complete their secondary education and aspire to get a tertiary or vocational education to improve their income.
- BCC manuals for improving CSS should be developed by nutritionists and made available to Primary Health Care workers

#### **5.4 CONTRIBUTION TO KNOWLEDGE**

- This study has provided evidence that the use of audio-visual aid, community drama and nutrition health talks are effective behaviour change communication (BCC) methods which could be used to improve the knowledge, attitude and practice (KAP) of child survival strategies amongst mothers.
- The use of a combination of the BCC methods was highlighted to be most effective among the mothers to improve their KAP of CSS
- A community drama script has also been developed as a result of this study which can serve as a useful tool for other interventions across Nigeria and beyond
- This study provided evidence that Community and family support systems were available in Delta State
- The Knowledge of child survival strategies amongst Health workers was high in Delta State

#### **5.5 LIMITATION OF THE STUDY**

The duration of this study was nine months which might not be enough time to evaluate the impact of the intervention on nutritional status and the general health status of children in the communities. There was a limitation of funding for this study, therefore audiovisual materials were not developed from scratch, and instead, materials from other programs were adapted.

#### **5.6 SUGGESTION FOR FURTHER RESEARCH**

This study focused on the design of behaviour change communication strategies that are entertaining and educative to improve mother's practice. More research should be conducted on how long a woman needs to be exposed to such interventions to positively impact child survival in a community.

## REFERENCES

- Adepoju, A.O., Akanni, O. & Falusi, A.O. 2012. Determinants of child mortality in rural Nigeria. *World Rural Observations*; 4(20: 38-45)
- Adewuyi, E.O., Auta, A., Khanal, V., Bamidele, O.O. & Akuoko, C.O. 2018. Prevalence and factors associated with underutilization of antenatal care services in Nigeria: a comparative study of rural and urban residences based on the 2013 Nigeria demographic and health survey. *PLoS ONE* 13(5): e0197324. <https://doi.org/10.1371/journal.pone.0197324>. (Accessed October 7 2020).
- Ahmad, B.O., Lopez, A.D. & Inoue M. 2000. The decline in child mortality: A reappraisal bulletin of the World Health Organization.
- Ajibuah, B.J. 2013. Appraisal of nursing mother's knowledge and practice of exclusive breastfeeding in Yobe State, Nigeria. *Journal of Biology, Agriculture and Healthcare* 2(20):75-81.
- Akeredolu, I.A., Osisanya, J.O., & Seriki-Mosadolorun, J.S. 2014. Mothers' nutritional knowledge, infant feeding practices and nutritional status of children (0-24months) in Lagos State, Nigeria. *European Journal of Nutrition & Food Safety* 4(4):364-374
- Akkamamba, B., Padmanalini, P. & Sunil, S. 2017. Impact of health education on the knowledge of mothers on newborn care practices--a study done in a tertiary care centre. *Journal of Evolution of Medical and Dental Sciences*, vol. 6, no. 82, p. 5778+. Accessed 21 June 2020.
- Akpala, C.O. 1993. Perinatal mortality in a northern Nigerian rural community. *Journal of the Royal Society of Health* 113 (3): 124-127
- Aliabadi, T. & Bastani, F. 2011. Effect of mothers' participation in preterm infants' care in nicu on readmission rates hayat. 2011(2):71-7.
- Al-Jassir, M.S., El-Bashir B.M., Moizuddun S.K., & Abu-Nayan A.A.R. 2006. Infant feeding in Saudi Arabia: mother's attitudes and practices. *Eastern Mediterranean Health Journal* Vol.12 (1):2
- Anaeto, S.G., Onabajo, O.S. & Osifeso, J.B. 2008. Models and theories of communication. African Renaissance Books Incorporated, Maryland USA. Chapter 9, 121-124



- Anya, S.E., Hydera, A. & Jaiteh, L.E. 2008. Antenatal care in The Gambia: missed opportunity for information, education and communication. *BMC Pregnancy Childbirth* 8:9-10.
- Asare, B.Y., Preko, J.V., Baafi, D & Asare, B.D. 2018. Breastfeeding practices and determinants of exclusive breastfeeding in a cross-sectional study at a child welfare clinic in Tema Manhean, Ghana. *Int Breastfeed J* 13, 12 (2018). <https://doi.org/10.1186/s13006-018-0156-y>
- Awogbenja, M.D. 2010. Factors influencing breastfeeding practices among mothers in Lafia Local government area of Nasarawa State, Nigeria. *PAT* 2010; 6 (2): 126-138 ISSN: 0794-5213.
- Ayotunde, T., Obiyan, M., Ojo M. A. & Faniyi, F.F. 2009. Maternal Age At Birth And Under-5 Mortality In Nigeria. *East African Journal of Public Health* 6 (1):11-14
- Baig-Ansari, N., Rahbar, M.H., Bhutta, Z.A. & Badruddin, S.H. 2006. Child's gender and household food insecurity are associated with stunting among young Pakistani children residing in urban squatter settlements. *Food and Nutrition Bulletin* Vol. 27 (2).
- Bandura A. (1982). Self-efficacy in human agency. *American Psychologist*: 37.,122-147
- Bandura A. Self-efficacy: The exercise of control: Worth Publishers; 1997.
- Bandura, A. 1998. Health promotion from the perspective of social cognitive theory. *Psychology and Health*, 13, 623-649.
- Banerjee, S.K., Andersen, K.L., Warvadekar, J. & Pearson, E. 2013. Effectiveness of a Behavior Change Communication Intervention to Improve Knowledge and Perceptions About Abortion in Bihar and Jharkhand, India. *International Perspectives on Sexual and Reproductive Health* 39(3):142–151, doi: 10.1363/3914213
- Bang, A.T. & Reddy H.M. 2005. Neonatal and infant mortality in the ten years (1993 to 2003) of the Gadchiroli field trial: effect of home-based neonatal care. *Journal of Perinatology*. 25(suppl.1):S92-105.
- Baqui, A.H., Black, R.E., El-Arifeen, S., Yunus, M. & Chakraborty, J. 2002. Effect of zinc supplementation started during diarrhoea on morbidity and mortality in Bangladeshi children: community randomised trial. *BMJ*, 2002, 325(7372):1059.

- Bartlett, A., Brieger, W., Ettlign, M., Harris, N., Kandasumamy, P., Muhammad, D. & Quick, T. 2003. Strategic assessment of the USAID/Nigeria child survival programme. Accessed November 25, 2015 from [http://pdf.usaid.gov/pdf\\_docs/PNACT131.pdf](http://pdf.usaid.gov/pdf_docs/PNACT131.pdf)
- Bayissa, Z.B., Gelaw, B.K., Geletaw, A., Abdella, A. & Chinasho, B., 2015. Knowledge and practice of mothers towards exclusive breastfeeding and its associated factors in Ambo Woreda West Shoa Zone Oromia Region, Ethiopia. *Epidemiology* (sunnyvale) 5: 182. doi:10.4172/2161-1165.1000182
- Bayode, O.J., Adewumi, E.A. & Odunwole S. 2011. Environmental implication of oil exploration and exploitation in the coastal region of Ondo state, Nigeria: a regional planning appraisal. *Journal of Geography and Regional Planning* Vol. 4 (3), pp 110-121
- Becker, M.H., Haefner, D.P. & Maiman, L.A., 1977. The health belief model in the prediction of dietary compliance: a field experiment. *Journal of Health and Social Behaviour* 18: 348–66.
- Bhatt, S., Gething, P., Brady, O. 2013. The global distribution and burden of dengue. *Nature* 496, 504–507. <https://doi.org/10.1038/nature12060>
- Black, R.E., Allen, L.H., Bhutta, Z.A., Caulfield, L.E. & Onis, M. 2008. Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet* 371 (9608): 243-60
- Brasington, A., Abdelmegeid, A., Dwivedi, V., Kols, A., Kim, Y.-M., Khadka, N., Rawlins, B., & Gibson, A. 2016. Promoting Healthy Behaviors among Egyptian Mothers: A Quasi-Experimental Study of a Health Communication Package Delivered by Community Organizations. *PLOS ONE*, 11(3). e0151783. <https://doi.org/10.1371/journal.pone.0151783>
- Briscoe, C. & Aboud, F. 2012. Behaviour change communication targeting four health behaviours in developing countries: A review of change techniques. *Social Science and Medicine* Volume 75, Issue 4, August 2012 Volume 75, Issue 4, August 2012, Pages 612-621 <https://doi.org/10.1016/j.socscimed.2012.03.016>
- Bryce, J., Arifeen, S., Paryo, G., Lanata, C.F. & Gwatkin, D. 2003. Reducing child mortality: can public health deliver? *The Lancet* Vol 362, Issue 9378, pp 159-164

- Burton, M.J. & Mabey, D.C., 2009. The global burden of trachoma: a review. *Public Library of Science Neglected Tropical Diseases*, 2009, 3(10):460
- Carey, M. P., Maisto, S. A., Kalichman, S. C., Forsyth, A. D., Wright, E. M., & Johnson, B. T. 1997. Enhancing motivation to reduce the risk of HIV infection for economically disadvantaged urban women. *Journal of Consulting and Clinical Psychology*, 65(4), 531e541. <http://dx.doi.org/10.1037/0022-006X.65.4.531>
- Carey, M. P., Maisto, S. A., Kalichman, S. C., Forsyth, A. D., Wright, E. M., & Johnson, B. T. 1997. Enhancing motivation to reduce the risk of HIV infection for economically disadvantaged urban women. *Journal of Consulting and Clinical Psychology* 65(4), 531e541. <http://dx.doi.org/10.1037/0022-006X.65.4.531>
- Cesar, V.G., Bahl, R., Barros, A.J.D., Giovamy, V.A. & Horton, S. 2016. Breastfeeding in the 21<sup>st</sup> century: epidemiology, mechanism and lifelong effect. *The Lancet* Vol.387, Issue 10017, pp 475-490
- Claeson, M., Bryce, J., Butreo, F., Wagstaff, A. & Axelsson, H. 2003. Inequalities in child health: Are we narrowing the gap? World Bank Report.
- Danso, J. 2014. Examining the practice of exclusive breastfeeding among professional working mothers in Kumasi metropolis of Ghana. *International Journal of Nursing* Vol 1 (1): pp 11-24.
- Dargent-Molina, P., Sherman, A.J., Strogatz, D. & Savitz, D.A. 1994. Association between maternal education and infant diarrhea in different households and community environment of Cebu, Philippines. *Soc. Sci. Med.* Vol. 38 (2): pp343 – 350.
- Darmstadt, G.L., Bhutta, Z.A., Cousens, C.S., Adam, T., Walker, N. 2005. Evidence-based, cost-effective interventions: how many newborn babies can we save? *The Lancet* vol. 365. Issue 9463, pp 977-986.
- Darnton A. 2008. GSR Behaviour Change Knowledge Review. Reference Report: An overview of behaviour change models and their uses, HMT Publishing Unit, London.
- Dennis, C.L.2003. The breastfeeding self-efficacy scale: psychometric assessment of the short form. *J Obstet Gynecol Neonatal Nurs.* 32(6):734-44.

- Dewey, K.G. 2005. Infant nutrition in developing countries: what works? *The Lancet* vol. 365, No.9474 pp1832-1834
- Dombrowski, S.U., Sniehotta, F.F., Avenell, A., MacLennon, G., & Araujo-Soares, V. 2012. Identifying active ingredients in complex behavioural interventions for obese adults with obesity-related co-morbidities or additional risk factors for co-morbidities: A systematic review. *Health Psychology Review* 6: 732.
- Edet, I.V., Effiong, J.H., Udoh, I.A., Bassey, U.I. & Emem, A. 2020. Knowledge and practice of child survival strategies among mothers attending postnatal clinic in Itu, a sub-urban area of south Nigeria. *International Journal of Health Sciences and Research* 2020; 10(1):1-8).
- Eng, J. 2003. Sample size estimation: how many individuals should be studied? *Radiology* 227 (2): 309-13.
- Ertem, I. O, Votto, N, & Leventhal, 2001. The timing and prediction of the early termination of breastfeeding. *Pediatrics* 107(3): 543–548.
- Etokidem, A.J. and Johnson, O. 2016. Child survival strategies: assessment of knowledge and practice of rural women of reproductive age in Cross River State, Nigeria. *Journal of Tropical Medicine* pp 1-8. <https://dx.doi.org/10.1155/2016/5098463>. Accessed September 25 2020.
- FAO. 2011. The State of Food Insecurity in the World: How does international price volatility affect domestic economies and food security? FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy. <https://portals.iucn.org/library/sites/library/files/documents/Food-003.pdf>
- Farquhar, J.W. 1978. The community-based model of life style intervention trials. *American Journal of Epidemiology* vol.108, No.2
- Favin, M. & Griffiths, M. 1999. Nutrition communications: using communications to improve nutrition, a guide for World Bank task managers. World Bank, Washington DC.
- Fayehun, O.A. 2010. Household environmental hazards and child survival in sub-Saharan Africa. DHS Working Paper No74. USA. ICF Macro.
- Fewtrell, L., Pruss-Ustun, A., Bos, R., Gore, F. & Bartram, J. 2007. Water, sanitation and hygiene: quantifying the health impact at national and local levels in countries with

- incomplete water supply and sanitation coverage. Environmental Burden of Disease Series 15. Geneva: World Health Organization.
- Feyisetan, B.J. & Adedokun, L.A., 1992. Impact of child care and disease treatment on infant mortality. In Van de Walle E, G. Pison and M. Sala-Diakanda. Eds. *Research Issues in Child Health and Child Care*. Oxford University Press, USA, 1992.
- Fischer, H. & Melnik, S.R. “Eds.” 1979. *Entertainment: A cross-cultural examination*. New York: Hastings House.
- Fischer, W. & Black, R.E. 2010. Zinc for the treatment of diarrhoea: effect on diarrhoea morbidity, mortality and incidence of future episodes. *International Journal of Epidemiology* 2010, 39(Suppl 1): i63–i69.
- Fisher, J. D. & Fisher, W. A. 1992. Changing AIDS-risk behavior. *Psychological Bulletin* 111(3), 455e474. <http://dx.doi.org/10.1037/0033-2909.111.3.455>
- Fisher, J. D., Fisher, W. A., & Shuper, P. A. 2009. The information-motivation behavioral skills model of HIV prevention behavior. In R. J. DiClemente, R. A. Crosby, & M. C. Kegler (Eds.), *Emerging theories in health promotion practice and research* (pp. 21e63). San Francisco, CA: Jossey-Bass.
- Fisher, J. D., Fisher, W. A., & Shuper, P. A. 2009. The information-motivation-behavioural skills model of HIV prevention behaviour. In R. J. DiClemente, R. A. Crosby, & M. C. Kegler (Eds.), *Emerging theories in health promotion practice and research* (pp. 21e63). San Francisco, CA: Jossey-Bass.
- Fisher, J. D., Fisher, W. A., Amico, K. R., & Harman, J. J. 2006. An information-motivation-
- Fisher, J. D., Fisher, W. A., Amico, K. R., & Harman, J. J., 2006. An information-motivation-behavioural skills model of adherence to antiretroviral therapy. *Health Psychology* 25(4), 462e473. <http://dx.doi.org/10.1037/0278-6133.25.4.462>
- Fisher, W. A., Fisher, J. D., & Harman, J. 2003. The information-motivation-behavioural skill model: a general social psychological approach to understanding promoting health behavior. In J. Suls, & K. A. Wallston (Eds.), *Social psychological foundation of health and illness* (pp. 82e106).

- Floyd, D. L., Prentice-Dunn, S., & Rogers, R. W. 2000. A meta-analysis of research on protection motivation theory. *Journal of Applied Social Psychology* 30, 407–429.
- Food and Agriculture Organization of the United Nations (FAO). 2016. Integrating Agriculture and Nutrition Education for Improved Young Child Nutrition. Programme Lessons. FAO, Rome, Italy. 2.
- Marangoni, F., Cetin, I., Verduci, E., Canzone, G., Giovannini, M., Scollo, P., Corsello, G. & Poli, A. 2016. Maternal Diet and Nutrient Requirements in Pregnancy and Breastfeeding. An Italian Consensus Document. *Nutrients* 8: 629; doi:10.3390/nu8100629
- Girard, A.W. 2012. The effects of household food production strategies on the health and nutrition outcomes of women and young children. A systematic review. *Paediatric and Perinatal Epidemiology* Vol. 26(S1): 205-222.
- Griffiths, M. & Rosso, J. 2007. Growth monitoring and the promotion of healthy young child growth: Evidence of Effectiveness and Potential to Prevent Malnutrition. The Manoff Group.
- Gubhaju, B. & Matsunmura, M., 2001. Women’s status, household structure and the utilization of maternal health services in Nepal: Even primary-level education can significantly increase the chances of a woman using maternal health care from a modern health facility. *Asia-Pacific Population Journal* 2001; 16(1):23-44)
- Guerrant, R.L., Oria, R.B., Moore, S.R., Oria, O.B. & Lima, A.M. 2008. Malnutrition as an enteric infectious disease with long-term effects on child development. *Nutrition Reviews* Vol. 66, Issue 9, pp487-505
- Gupta, R. 2020. China on target to eliminate extreme poverty by 2020. Published January 21, 2020. [http://www.china.org.cn/opinion/2020-01/21/content\\_75636612.htm](http://www.china.org.cn/opinion/2020-01/21/content_75636612.htm)
- Guttmacher Institute. 2010. Facts on investing in family planning and maternal and newborn health. In Brief. [www.guttmacher.org/pubs/FB-AIU-summary.pdf](http://www.guttmacher.org/pubs/FB-AIU-summary.pdf). 4
- Haider, B.A. & Bhutta, Z.A. 2009. The effect of therapeutic zinc supplementation among young children with selected infections: a review of the evidence. *Food and Nutrition Bulletin* 30(1Suppl.): S41–S59.

- Hall, D. and Elliman, D. 2003. *Health for all children*, (4th Edition), Oxford: Medical Publications.
- Hessa, C.R., Douglas, M.T. & Gardner, H.B. 2004. Self-efficacy and parenting of high-risk infants: The moderating role of parent knowledge of infant development. *Applied Developmental Psychology* 2004; 25:423–37.
- Hijazi, H.H., Alyaha, M.S., Sindiani, A.M., Saqan, R.S. & Okour, A.M. 2018. Determinants of antenatal care attendance among women residing in highly disadvantaged communities in northern Jordan: a cross-sectional study. *Reprod. Health* 15; 106(2018). <https://doi.org/10.1186/s12978-018-0542-3>. Accessed October 7 2020.
- Hochbaum, G.M. 1958. *Public Participation in Medical Screening Programs: A Socio-Psychological Study*. Public Health Service Publication #572. Washington, DC: US Government Printing Office.
- Hoddinott, J., Ahmed, I., Ahmed, A. & Roy, S., 2017. Behaviour change communication activities improve infant and young child nutrition knowledge and practice of neighbouring non-participants in a cluster-randomized trial in Bangladesh. *PLoS One* 12(6):e0179866 <https://pdfs.semanticscholar.org/c565/1c67878e0226157b75ade756d913162f61b8.pdf>
- Hoddinott, J., Ahmed, A., Karachiwalla, N.I. & Roy, S. 2018. Behaviour change communication activities improve infant and young child nutrition knowledge and practice of neighbouring non-participants in a cluster-randomized trial in Bangladesh. *Matern Child Nutr.* 14(1).
- Humphrey, J.H. 2009. Child undernutrition, tropical enteropathy, toilets and handwashing. *The Lancet* vol. 374, No. 9694, p1032-1035
- Jalan, J. & Ravallion, M. 2001. Behavioural responses to risk in rural china. *Journal of Development Economics* Vol 66 (1) pp 23-49
- Johns Hopkins Bloomberg School of Public Health. *Entertainment-Education, 2008. Info Reports* Jan. 2008. Issue No.17
- Jones, A.D., Ickes S.B., Smith, L.E., Mbuja, M.N.N. & Chasekwa, B. 2014. World Health organization infant and young child feeding indicators and their associations with child

- anthropometry: a synthesis of recent findings. *Maternal & Child Nutrition* Vol. 10, Issue 1, pp 1-17.
- Jones, G., Steketee, R.W., Black, R.E., Bhutta, Z.A. & Morris, S.S., 2003. How many child deaths can we prevent this year? *The Lancet* Vol. 362, Issue 9377, pp 65-71.
- Kabagenyi, A. & Nankinga, O. 2009. Household decision making and child survival status in Uganda. department of population studies. Makerere University-ISAIE.
- Kana, M.A., Doctor, H.V., Peleteiro, B., Lunet, N. & Barros, H. 2015. Maternal and child health interventions in Nigeria: a systematic review of published studies from 1990 to 2014. *BMC Public Health* 15:334 DOI 10.1186/s12889-015-1688-3
- Kengalagutti, B.M., Shivaswamy, M.S., Narasannavar, A.B., Mubashir, A. & Ashutosh, S. 2015. Knowledge, attitude and practice of infant feeding among mothers in rural field practice area of vantamin primary health centre, Belgaum – A cross sectional study. *Al Ameen J Med Sci*; 8 (1): 16-21.
- Khan, M.H., Khalique, N., Amir, A. and Khan, R., 2013. Impact of behaviour change communication among pregnant women regarding knowledge of low birth weight infant's susceptibility to certain morbidities. *Annual Review and Research in Biology* 3(4): 350-357.
- Khan, M.H., Khalique, N., Siddiqui, A.R., & Amir, A., 2013. Impact of behavior change communication among pregnant women regarding neonatal care. *Indian Journal of Pediatrics* 80(10), 804-808. DOI: 10.1007/s12098-013-1076-x
- Khan, M.H., Khalique, N., Siddiqui, A.R., Amir, A. & Khan, R. 2012. Delivery practices in periurban area of Aligarh: a behaviour change communication intervention study. *Natl J Community Med.* 2012; 3(4):715-9
- Koepsell, T.D. 1998. Epidemiologic issues in the design of community trials. In: Brownson, R. and Petitti D.B. Eds. *Applied Epidemiology*. New York: Oxford University Press.
- Konlan, K.D., Saah, J.A., Amoah, R.M., Doat, A.R. & Mohammed, I. 2020. Factors influencing the utilization of focused antenatal care services during pregnancy, a study among postnatal women in a tertiary healthcare facility, Ghana. *Nursing Open* 2020; 00:1-11. <https://doi.org/10.1002/nop2.569>. Accessed October 7, 2020.



- Kramer, M.S., Aboud, F. & Mironova, E. 2008. Breastfeeding and child cognitive development; new evidence from a large randomized trial. *Arch Gen Psychiatry*. 65 (5): 578-584
- Kudzai, C. 2014. Impact of Poor Nutrition on the Academic Performance of Grade Seven learners: A Case of Zimbabwe. *International Journal of Learning & Development* Vol. 4, No. 3. DOI: 10.5296/ijld.v4i3.6169
- Lamstein, S. 2014. SBCC Pathways for Improved Maternal, Infant and Young Child Nutrition Practices. SPRING Working Paper.
- Lewin, R.W. 1951. *Field Theory in Social Science*. New York: Harper
- Lukacik, M., Thomas, R.L. and Aranda, J.V., 2008. A meta-analysis of the effects of oral zinc in the treatment of acute and persistent diarrhea. *Pediatrics*, 2008, 121:326–336.
- Lutter, C. K., Perez-Escamilla, R., Segall, A., Sanghvi, T. & Teruya, K. 1997. The effectiveness of a hospital-based program to promote exclusive breast-feeding among low-income women in Brazil. *American Journal of Public Health* 87:659-663.
- Maeza, M.A., Mesele, D.A., & Zelalem, K.K. 2015. “Factors associated with exclusive breastfeeding practices in Debre Berhan District, Central Ethiopia,” *International Breastfeeding Journal*, vol. 10, p. 23, 2015.
- Mahalanabis D. 1973. Oral fluid therapy of cholera among Bangladesh refugees. *Johns Hopkins Medical Journal* 1973, 132(4):197–205
- Mansour, A.A & Hassan, S.A., 2009. Factors that influence women’s nutrition knowledge in Saudi Arabia. *Health Care for Women International* Vol. 15 pp 213-223
- Mbada, C.E., Olowookere, A.E. & Faronbi, J.O. 2013. Knowledge, attitude and techniques of breastfeeding among Nigerian mothers from a semi-urban community. *BMC Res Notes* 6, 552 (2013). <https://doi.org/10.1186/1756-0500-6-552>
- Mekwunyei, C.L. & Odetola, T.D. 2020. Determinants of maternal health service utilisation among pregnant teenagers in Delta State, Nigeria. *Pan African Medical Journal* 37:81. doi: [10.11604/pamj.2020.37.81.16051](https://doi.org/10.11604/pamj.2020.37.81.16051)
- Menon, P., Saha, K., Kennedy, A., Khaled, A., Tyagi, T., Sanghvi, T., Afsana, K., Haque, R., Frongillo, E., Ruel, M., & Rawat, R. 2015. Social and Behavioral Change Interventions Delivered at Scale Have Large Impacts on Infant and Young Child Feeding (IYCF)

- Practices in Bangladesh. *The FASEB Journal* 29(1) Supplement 584.30  
[http://www.fasebj.org/content/29/1\\_Supplement/584.30](http://www.fasebj.org/content/29/1_Supplement/584.30)
- Mesike, C.G. and Mojekwu, J.N., 2012. Environmental determinants of child mortality in Nigeria. *Journal of Sustainable Development* Vol.5, No.1; January 2012.
- Michie, S., Abraham, C., Whittington, C., McAteer, J., & Gupta, S. 2009. Effective techniques in healthy eating and physical activity interventions: A meta-regression. *Health Psychology* 28: 690701.
- Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D. & Walker, A. 2005. Making psychological theory useful for implementing evidence based practice: a consensus approach. *Qual Saf Health Care* 14:26–33. doi: 10.1136/qshc.2004.011155
- Miller, E.M. 2011. Maternal health knowledge and infant health outcomes in the Ariaal people of northern Kenya. *Social Science and Medicine* (2011), doi: 10.1016/j.socscimed.2011.07.009
- Milne, S., Sheeran, P., & Orbell, S. 2000. Prediction and intervention in health-related behavior: A meta-analytic review of protection motivation theory. *Journal of Applied Social Psychology* 30, 106–143.
- Misovich, S. J., Martinez, T., Fisher, J. D., Bryan, A., & Catapano, N. 2003. Predicting breast self-examination: A test of the information-motivation-behavioral skills model. *Journal of Applied Social Psychology* 33(4):775-790. <http://dx.doi.org/10.1111/j.1559-1816.2003.tb01924.x>
- Mora, J.O. 2002 Iron supplementation: overcoming technical and practical barriers. *Journal of Nutrition* 132:853S–855S.
- Morrow, A. L., Guerrero, M. L., Shults, J., Calva, J. J., Lutter, C., 1999. Efficacy of home-based peer counselling to promote exclusive breastfeeding: A randomised controlled trial. *Lancet* 353:1226-1231.
- Mosley, W.H. & Chen, L.C. 1894. An analytical framework for the study of child survival in developing countries. *population and development review, A Supplement* 1894:10:3-48

- Mousa, S., Kimiagar, S.M., Shahbazi, M., Mehrabi, Y. & Kolahi, A.A. 2004. Assessing the impact of nutrition education on growth indices of Iranian nomadic children: an application of a modified beliefs, attitudes, subjective-norms and enabling-factors model. *British Journal of Nutrition* 91, 779–787. DOI: 10.1079/BJN20041099
- Mwaikambo, L., Speizer, I.S., Schurmann, A., Morgan, G., & Fikree, F. 2011. What works in family planning interventions: a systematic review of the evidence. *Studies in Family planning*, 42, 67-82.
- Mwangome, M., Andrew, P., Plugge E. & Nweneka, C. 2010. Determinants of Appropriate child Health and Nutrition practices among women in rural Gambia. *Health popul.* 28. (2) 167-172, Bangladesh.
- Naiho, A.O., Nwangwa, E.K., Ogege, S. & Aloamaka, C.P. 2010. Comparism of Socioeconomic and nutritional status between oil producing and non-oil producing communities in Delta State. *Int.J Nutr. Metab.* Vol 12 (4) pp 70-72
- National Nutrition and Health Survey (NNHS). 2018. Report on the nutrition and health situation of Nigeria. Abuja, Nigeria. National Bureau of Statistics (NBS), UNICEF, USAID and UKAID. Retrieved June 19, 2020 from <https://www.unicef.org/nigeria/media/2181/file/Nigeria-NNHS-2018.pdf>
- National Nutrition Health Survey Report. 2015. Report on the nutrition and health situation of Nigeria. USAID, UNICEF and UKAID.
- National Population Commission [Nigeria]. 2000. Nigeria Demographic and Health Survey 1999. Calverton, Maryland: National Population Commission and ORC/Macro.
- National Population Commission (NPC) [Nigeria] and ICF Macro. 2009. Nigeria Demographic and Health Survey 2008. Abuja, Nigeria: National Population Commission and ICF Macro.
- National Population Commission (NPC) [Nigeria], National Malaria Control Programme (NMCP) [Nigeria], and ICF International. 2012. Nigeria Malaria Indicator Survey 2010. Abuja, Nigeria: NPC, NMCP, and ICF International.
- National Population Commission (NPC) [Nigeria] and ICF International. 2014. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International

- National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF.
- Naugle, D.A. & Hornik, R.C. 2014. Systematic Review of the Effectiveness of Mass Media Interventions for Child Survival in Low- and Middle-Income Countries. *Journal of Health Communication: International Perspectives*, 19(1), 190-215. DOI: 10.1080/10810730.2014.918217
- Niessen, L., Hove A., Hilderink, H., Weber, M. & Mulholland, K. 2009. Comparative impact assessment of child pneumonia interventions. *Bulletin of the World Health Organization* 87:472–280.
- Njokanma, O.F. & Olarewaju, D.M. 1995. A study of neonatal deaths at the Ogun state university teaching hospital, Sagamu, *Nigeria. J Trop Paediatr.* 98:155-600
- Norton, W. E. 2009. Relative efficacy of a pregnancy, STI, or HIV prevention-focused intervention on changing sexual risk behavior among young adults. Unpublished doctoral dissertation. Storrs: University of Connecticut. Osborn, C. Y. (2006).
- Ogunba, B.O. 2006. Maternal behavioural feeding practices and under-five nutrition: implication for child development and care. *J. Appl. Sci. Res.*, 2(12):1132-1136.
- Ogunjuyigbe, P.O., 2004. Under-five mortality in Nigeria: perception and attitude of the Yoruba towards the existence of abiku. *Demographic Research*: 2004: 11:43-56
- Oladoyinbo, C. and Bolaji, O. 2015. Knowledge and practice of child survival strategies in Ijebu-Ode Nigeria. Conference Paper, *Maternal and Child Health Nutrition* 2015/06/01. Retrived January 5, 2021. <https://onlinelibrary.wiley.com/doi/10.1111/mcn.12238>
- Olney, D.K. 2015. A 2 year integrated agriculture and nutrition and health behaviour change communication program targeted to women in Burkina Faso reduces anemia, wasting and diarrhea in children 3-12 months of age at baseline. A cluster randomized controlled trial. *Journal of Nutrition* Vol. 145: 1317-1324.
- Olney, D.K., Bliznashka, L., Pedehombga, A., Dillon, A., Ruel, M.T., & Heckert, J., 2016. A 2-Year Integrated Agriculture and Nutrition Program Targeted to Mothers of Young Children in Burkina Faso Reduces Underweight among Mothers and Increases Their Empowerment: A Cluster-Randomized Controlled Trial. *Journal of Nutrition* 146(5), 1109-1117. DOI: 10.3945/jn.115.224261

- Onyezili, F. 2005. Adequate nutrition for the development of the rural child. Invited Paper Delivered at the Centre for Rural Development, University of Nigeria, Nsukka.
- Ordinioha, B. 2011. A survey of the community water supply of some rural riverine communities in the Niger Delta region of Nigeria: Health implications and literature search for substitute interventions. *Niger Med J.* 52 (1): 13-18
- Ordinioha, B. & Sawyer, W. 2008. Food insecurity, malnutrition and crude oil spillage in a rural community in Bayelsa State, South-South Nigeria. *Nigerian Journal of Medicine* vol. 17, No.3, pp 304-309
- Osborn, C. Y. 2006. Using the IMB model of health behavior change to promote self-management behavior in Puerto Ricans with diabetes. Unpublished doctoral dissertation. Storrs: University of Connecticut.
- Palloni, A. 1981. 'Design problems and data collection strategies in studies of mortality differentials in developing countries'. Seminar on methodology and data collection in mortality studies, Dakar, Senegal. 7-10 July. Liege: International Union for the scientific study of Population.
- Pandey, S. & Karki, S. 2014. Socio-economic and demographic determinants of antenatal care services utilization in central Nepal. *Int J MCH AIDS* 2(2): 212-219.
- Pelto, G.A. 2000. Improving complementary feeding practices and responsive parenting as a primary component of intervention to prevent malnutrition in infancy and early childhood. *Pediatrics* 106;1300
- Pender, N.J., Murdaugh, C. & Parsons, M.A. 2011. *Health Promotion in Nursing Practice*. 6th Edition, Pearson, Boston.
- Piotrow, P.T., Kincaid, D.L., Rimon J., & Rinehart, W. 1997. Health communication: lessons from family planning and reproductive health. Westport, CT.
- Podewils, L.J. 2004. Acute, infectious diarrhea among children in developing countries. Seminars in *Pediatric Infectious Diseases* 15(3):155–168.
- Polly, R. 2009. Integrated Theory of Health Behavior Change: background and intervention development. *Clin Nurse Spec* 23 (3):161-70; quiz 171-2. doi: 10.1097/NUR.0b013e3181a42373.

- Prochaska J. & Velicer W. 1997. 'The Transtheoretical Model of Health 36 Behaviour Change', *American Journal of Health Promotion* 12(1), 38–48.
- Proulx, K. & Aboud, F. 2014. Study of parental knowledge, attitudes and practice related to early childhood development. UNICEF Pacific and Solomon Islands Ministry of Education and Human Resources, December 2014.
- Rahalkar, A.A., Phalke, D.B. & Phalke, V.D. 2014. A study of breastfeeding and complementary feeding practices with emphasis on misconceptions amongst the women with under-two year children in rural area. *Int J Med Res Health Sci.* 2014; 3(4): 851-855. Doi:10.598/2319-5886-2014.00013.7. Accessed October 7 2020.
- Raheem, U.A., Sheu, R.A. & Segun-Agboola, B.T. 2009. Exploring the social and environmental determinants of child health in Ilorin, Nigeria. *Ethiopian Journal of Environmental Studies and Management* Vol.2. No.3 2009
- Rahman, A., Leppard, M., Rashid, S., Jahan, N., & Nasreen, H.E. 2016. Community perceptions of behaviour change communication interventions of the maternal neonatal and child health programme in rural Bangladesh: an exploratory study. *BMC Health Services Research* 16, 389. <https://doi.org/10.1186/s12913-016-1632-y>
- Reckwitz, A. 2002. Toward a theory of social practices: a development in culturalist theorizing. *European Journal of Social Theory* 5, 243-263.
- Riboli-Sasco, E., Leslie, J., Felix, L., Head, R., Car, J. & Gunn, L.H. 2015. Effectiveness of communication strategies embedded in social marketing programmes on health behaviours and related health and welfare outcomes in Low and Middle Income Countries (LMICs). The Campbell collaboration. Rogers E., 1995. Diffusion of Innovation, Free Press, New York.
- Ronsmans C. 1996. Birth spacing and child survival in rural Senegal. *Int.J Epidemiol.* 1996 Oct; 25(5): 989-97
- Rosales, A., Sargsyan, V., Abelyan, K., Hovhannesian, A., Ter-Abrahanyan, K., Jillson, K.Q. & Cherian, D. 2019. Behavior change communication model enhancing parental practices

- for improved early childhood growth and development outcomes in rural Armenia – A quasi-experimental study. *Preventive Medicine Reports 14 (2019) 100820*
- Rosenstock, I.M. 1974. Historical origins of the health belief model, *Health Education Monographs 2*, 328–335.
- Ross, A.C. 2007. Vitamin A supplementation and retinoic acid treatment in the regulation of antibody responses in vivo. *Vitamins and Hormones 75*:197–222.
- Sakraida, T.J. 2013. The Health Promotion Model. In: Alligood, M.R. and Marriner Tomey, A., Eds., *Nursing Theorists and Their Work*, 8th Edition, Chapter 21, Mosby Elsevier, St. Louis.
- Salehi, M., Kimiagar, S.M., Shahbazi ,M., Mehrabi, Y. & Kolahi, A.A. 2004. Assessing the impact of nutrition education on growth indices of Iranian nomadic children: an application of a modified belief, attitudes, subjective-norms and enabling factors model. *British Journal of Nutrition (2004)*; 91, 779-787.
- Sanusi, R.A & Gbadamosi, A.O., 2009. Do Mother’s Knowledge and Practice of Child Survival Strategies Affect the Nutritional Status of Their Children? *Pak. J. Nutr.*, 8(9): 1506-1511.
- Sanusi, R.A., Leshi, O.O. & Agada, U.N. 2016. Mother’s knowledge and practice of breastfeeding and complementary feeding in Enugu State, Nigeria. *J.Res.Nurs.Midwifery 5(1)*:021-029
- Schellenberg, A.M., Abdulla, S., Nathan, R., Mukasa, O. & Marchant, T.J. 2001. Effect of large-scale social marketing of insecticide treated nets on child survival in rural Tanzania. *The Lancet* Vol. 357, Issue 9264, pp 1241-1247
- Schellenberg, J.A., Cesar, V.G. & Mushi, A. 2003. Inequalities among the very poor: health care for children in rural southern Tanzania. *Lancet* Volume 361, Issue 9357, pp 561-566
- Schultz, T.P. 1979. ‘Interpretations of relations among mortality economics of households and the health environment’. Proceedings of the meeting on socioeconomic determinants and consequences of mortality. Mexico City, 19-23 June. New York and Geneva: United Nations and World Health Organization.

- Schultz, T.P. 1984. Studying the impact of household and community variables on child mortality. *Population and Development Review, Supplement* 10:215-35
- Schwandt, H.M., Speizer, I.S. & Corroon, M. 2017. Contraceptive service provider imposed restrictions to contraceptive access in urban Nigeria. *BMC Health Serv Res* 17, 268 <https://doi.org/10.1186/s12913-017-2233-0>
- Seif, S.A, Kohi, T.W & Moshiro, C.S. 2019. Sexual and reproductive health communication intervention for caretakers of adolescents: a quasi-experimental study in Unguja-Zanzibar. *Reproductive Health* 16:92 <https://doi.org/10.1186/s12978-019-0756-z>
- Semahegn, S., Tesfaye, G. & Bogale, A. 2014. Complementary feeding practices of mothers and associated factors in Hiwot Fana specialized hospital, Eastern Ethiopia. *Pan African Medical Journal* 2014; 18: 143. ISSN 1937-8688.
- Sholeye, O. O. Akinpelu, A., Bankole, E. & Diya, O. 2016. Knowledge of infant feeding among mothers in Sagamu southwestern Nigeria: implication for nutrition education. *Amer.J.Food & Nutr.*, 6(3):69-76
- Sibley, L.M., Tesfaye, S., Desta, F.B., Frew, A.H. & Kebede, A. 2014. Improving maternal and newborn health care delivery in rural Amhara and Oromiya regions of Ethiopia through the maternal and newborn health in Ethiopia partnership. *Journal of Midwifery & Women's Health*. 2014; 51(1):S6-S20
- Silver, E. J. & Iryes H.T., 1995. Relationships of self-esteem and efficacy to psychological distress in mothers of children with chronic physical illness. *Health Psychology* 14(4):333-40.
- Singh, S., Darroch J., Ashford L. & Vlassoff M. 2009. Adding it up: the costs and benefits of investing in family planning and maternal and newborn health. New York: Guttmacher Institute and United Nations Population Fund.
- Singhal A. & Rogers, M.E. 1999. Entertainment-Education: A Communication Strategy for Social Change. Lawrence Erlbaum Associates Publishers, Mahwah, New Jersey.
- Smith, K.R., Corvalan, C.F. & Kjellstrom, T. 1999. "How much global ill health is attributable to environmental factors?" *Epidemiology and Infection* 10(5):573-58



- SNV, KIT, CDI & SDC. 2017. Triggering for positive behaviour change in nutrition- Insights gained from Sustainable Nutrition for All in Uganda and Zambia. Technical Brief No. 2. SNV Netherlands Development Organisation, The Hague, The Netherlands. Pp. 2-18
- Sobo A. A, Oladoyinbo, C. A. & Akintola, O. S., 2016. Knowledge and practice of mothers on child survival strategies in Odeda Local Government Area, Ogun State, Nigeria. *Journal of Research in Nursing and Midwifery* Vol. 5(3) pp. 055-062, September, 2016 Available online <http://www.interestjournals.org/JRNM> DOI: <http://dx.doi.org/10.14303/JRNM.2016.015>
- Sreekumaran, N. & Sarak, S. 2016. Effectiveness of behaviour change communication interventions in delivering health messages on antenatal care for improving maternal and child health indicators in a limited literacy setting: an evidence summary of systematic reviews. London: EPPI-Centre, Social Science Research Unit, ULC Institute of Education, University College London.
- Sriram, S., Soni, P., Thanvi, R., Prajapati, N. & Mehariya, K.M. 2013. Knowledge, attitudes and practice of mothers regarding infant feeding practices. *National Journal of Medical Research* 3(2):147-150.
- Tadele, N., Habta, F. & Akmel, D. 2016. Knowledge, attitude and practice towards exclusive breastfeeding among lactating mothers in Mizan Aman town, Southwestern Ethiopia: descriptive cross-sectional study. *Int Breastfeed J* 11: 3 <https://doi.org/10.1186/s13006-016-0062-0>
- Tette, E.M.A., Sifah, E.K. & Nartey, E.T. 2015. Factors affecting malnutrition in children and the uptake of interventions to prevent the condition. *BMC Pediatr.* 2015; 15: 189. doi: 10.1186/s12887-015-0496-3
- The ACQUIRE Project. 2006. *Revitalizing the IUD in Kenya*. Acquiring Knowledge. Applying Lessons Learned to Strengthen FP/RH Services. No.2. The ACQUIRE Project/EngenderHealth, New York. <https://www.k4health.org/sites/default/files/revitalizing%20the%20iud%20in%20kenya.pdf>
- Titaley, C.R., Dibely, M.J., Agho, K., Roberts, C.L. & Hall, J. 2008. Determinants of neonatal mortality in Indonesia. *BMC Public Health* 8:232

- Tucker, M. & Reicks M. 2000. Exercise as a gateway behaviour for healthful eating among older adults: an exploratory study. *Journal of Nutrition Education and Behaviour* Vol 34 (1) pp S14-S19.
- Tulloch, J. 1999. Integrated Approach to child health in developing countries. *The Lancet* vol 354 Special Issue, SI116-SI120
- Tushar, N., Chavan, M.K., Mahajan, H. & Mahajan A. 2013. Primary care based interventions are associated with improvement in nutritional status of children: evidence from community based study in India. *International Journal of Scientific and Research Publications* Volume 3, Issue 2, February 2013.
- Uddin, J. & Hossain, Z. 2008. Predictors of Infant Mortality in a Developing Country. *Asian Journal of Epidemiology* 1 (1): 1-16
- Ugwu, G.I. 2012. Pattern of Morbidity and Mortality in the Newborn Special Care Unit in a Tertiary Institution in the Niger Delta Region of Nigeria: A two-year Prospective Study. *Glo.Adv.Res.J.Med.Med.Sci* Vol 1 (6) pp.133-138, July 2012
- Ugwueje, E.A. 2012. Cultural Environment, Health Seeking behaviour and Survival Chances of Under-five Children in South East Nigeria. *International Journal of Development and Management Review* Vol.7 (1).
- UN Millennium Development Goals Report, United Nations. 2013. Published in United Nations, New York 13-26318—June 2013—10 000. Retrieved June 19, 2020 from <https://www.un.org/millenniumgoals/pdf/report-2013/mdg-report-2013-english.pdf>
- UNFPA. 2002. Communication for development roundtable report focus on HIV/AIDS communication and evaluation. Retrieved April 10, 2015 [https://www.unfpa.org/sites/default/files/pub-pdf/comm4dev\\_nicaragua.pdf](https://www.unfpa.org/sites/default/files/pub-pdf/comm4dev_nicaragua.pdf) page 37 - 61
- UNICEF. 2010. India, the Children, Nutrition. [http://www.unicef.org/india/children\\_2356.htm](http://www.unicef.org/india/children_2356.htm)
- UNICEF. 2012. The State of the World's Children – Children in an Urban World
- [UNICEF. 2013. Levels & Trends in Child Mortality. https://www.unicef.org/media/files/2013\\_IGME\\_child\\_mortality\\_Report.pdf](https://www.unicef.org/media/files/2013_IGME_child_mortality_Report.pdf)
- UNICEF. 2019. Report on Maternal Health: Antenatal Care. [Data.unicef.org/topic/maternal-health/antenatal-care/](http://data.unicef.org/topic/maternal-health/antenatal-care/). (Accessed October 7 2020).
- UNICEF. 2020. Levels & Trends in Estimates developed by the UN Inter-agency Group for Child Mortality Estimation United Nations Child Mortality. New York.

- United Nations Children Educational Fund Regional Office for South Asia. 2005. Strategic Communication for Behaviour and Social Change in South Asia. Nepal.
- United Nations Children Educational Fund. 2009. The State of the World's Children 2009: Maternal and Newborn Health. New York.
- United Nations Inter-agency Group for Child Mortality Estimation (UN IGME). 2017. Levels and trends in child mortality. *Estimates developed by the UN Inter-agency Group for Child Mortality Estimation*, United Nations Children's Fund, New York, NY, USA.
- United Nations, Department of Economic and Social Affairs, Population Division. 2020. World Mortality 2019 (ST/ESA/SER.A/437). [https://www.un.org/en/development/desa/population/publications/pdf/mortality/WMR2019/World\\_Mortality\\_2019.pdf](https://www.un.org/en/development/desa/population/publications/pdf/mortality/WMR2019/World_Mortality_2019.pdf)
- USAID. 2003. Immunization essentials: A practical field guide has been produced and funded by the Office of Health, Infectious Diseases, and Nutrition, Bureau for Global Health, U.S. Agency for International Development (USAID). October 2003
- USAID. 2009. Two Decades of Progress: USAID's Child Survival and Maternal Health Program. U.S. Agency for International Development 1300 Pennsylvania Avenue, NW Washington
- USAID. 2014. Evidence of Effective Approaches to Social and Behavior Change Communication for Preventing and Reducing Stunting and Anemia. Findings from a Systematic Literature Review. [https://www.spring-nutrition.org/sites/default/files/publications/series/spring\\_sbcc\\_lit\\_review.pdf](https://www.spring-nutrition.org/sites/default/files/publications/series/spring_sbcc_lit_review.pdf)
- Uthman, O.A. 2008. Environmental factors, neighbourhood deprivation and under-5 mortality in nigeria: an explanatory spatial data analysis. *The Internet Journal of Paediatrics and Neonatology* volume 9 number 1. DOI:10.5580/020
- Vani, S., Shushma, K. & Veenu, S., 2003. Effect of nutrition education of mothers and infants feeding practices. *Indian J Pediatr.* 70(6): 463-466
- Villamor, E., & Fawzi, W.W. 2005. Effects of vitamin A supplementation on immune responses and correlation with clinical outcomes. *Clinical Microbiology Reviews* 3:446-464.
- Walker, N., Fischer-Walker, C., Bryce, J., Bahl, R. & Cousens, S. 2011. Standards for CHERG reviews of intervention effects on child survival. *Int J Epidemiol.* 39 (Suppl 1): i21-31

- Walker, S.N., Sechrist, K.R. & Pender, N.J., 1987. The Health-Promoting Lifestyle Profile: Development and Psychometric Characteristics. *Nursing Research* 36, 76-80. <https://doi.org/10.1097/00006199-198703000-00002>
- Walker, S.P., Wachs, T.D., Grantham-McGregor, S., Black, M.M. & Nelson, C.A. 2011. Inequality in early childhood: risk and protective factors for early child development. *The Lancet* Vol. 318, issue 9799, pp 1325-1338.
- Wayse, V., Yousafzai, A., Mogale, K. & Filtean, S., 2004. Association of subclinical vitamin d deficiency with severe acute lower respiratory infection in Indian children under-5 years. *European Journal of Clinical Nutrition* 58, 563-567
- Webb, T.L., Joseph, J., Yardley, L., & Michie, S. 2010. Using the internet to promote health behaviour change: A systematic review and meta-analysis of the impact of theoretical basis, use of behaviour change techniques, and mode of delivery on efficacy. *Journal of Medical Internet Research*, 12:1.
- West, K.P. & Sommer, A. 1987. Delivery of oral doses of vitamin A to prevent vitamin A deficiency and nutritional blindness. A state-of-the-art review. Rome, United Nations ACC/SCN, 1987. *Nutrition Policy Discussion Paper No 2*.
- WFP, UNICEF WHO & FAO Hail REACH. 2012. Initiative on child undernutrition as foundation for sustainable development goals. Joint Press Release June 20, 2012. Retrieved from [https://www.unicef.org/media/media\\_62664.html](https://www.unicef.org/media/media_62664.html)
- WHO. 2001. Report of the expert consultation on the optimal duration of exclusive breastfeeding. Geneva, WHO, 2001.
- WHO. 2003. Diet, Nutrition and the Prevention of Chronic Diseases: Report of a Joint WHO/FAO Expert Consultation.
- WHO. 2005. Technical Consultation on Birth Spacing, Geneva, Switzerland, 13-15 June, 2005, available at [http://www.who.int/maternal\\_child\\_adolescent/documents/birth\\_spacing05/en/index.html](http://www.who.int/maternal_child_adolescent/documents/birth_spacing05/en/index.html)
- WHO. 2005. The World Health Report. Make every mother and child count. Retrieved August 3, 2016 from [https://www.who.int/whr/2005/whr2005\\_en.pdf?ua=1](https://www.who.int/whr/2005/whr2005_en.pdf?ua=1)

- WHO, 2007. Preventing and controlling micronutrient deficiencies in populations affected by emergency. Geneva, WHO, 2007.
- WHO & UNICEF. 2007. Reaching optimal iodine nutrition in pregnant and lactating women and young children. Joint Statement by the World Health Organization and the United Nations Children's Fund. Geneva, WHO. 2007.
- WHO. 2008. Indicators for assessing infant and young child feeding practices. Part 1. Definitions. Geneva, WHO, 2008.
- WHO. 2009. Global health risks: mortality and burden of disease attributable to selected major risks. Geneva, WHO, 2009.
- WHO. 2010. Recommendations on the management of diarrhea and pneumonia in HIV-infected infants and children: integrated management of childhood illness (IMCI). Geneva, WHO, 2010.
- WHO. 2012. Recommendations for common childhood conditions: evidence for technical update of pocket book recommendations. Geneva, WHO, 2012 ([http://www.who.int/maternal\\_child\\_adolescent/documents/management\\_childhood\\_conditions/en/index.html](http://www.who.int/maternal_child_adolescent/documents/management_childhood_conditions/en/index.html), accessed 17 May 2013.)
- WHO. 2015. World Health Statistics. Geneva.
- Wokocha G.A., Emeodu D. & Ihenko S. 2011. Impact of Crude oil spillage on soil and food production in Rivers State, Nigeria. *Journal of Money, Investment and Banking* 19: 1450-288.
- World Bank. 2002. World Bank Group work in low-income countries under stress: a taskforce report. Washington DC.
- World Bank, 2019. Mortality Rate, Infant (pr 1,000 live births) - China. <https://data.worldbank.org/indicator/SP.DYN.IMRT.IN?locations=CN>
- World Health Organization. 2014. *WHO Handbook for Guideline Development* 2nd Edition.

- World Health Organization. 2018. Reducing stunting in children: equity considerations for achieving the Global Nutrition Targets 2025. Geneva: World Health Organization; 2018. Licence: CC BY-NC-SA 3.0 IGO.
- Wuehler, S.E., Hess, S.Y. & Brown, K.H. 2011. Accelerating improvements in nutritional and health status of young children in the Sahel region of sub-Saharan Africa: review of international guidelines on infant and young child feeding and nutrition. *Maternal and Child Nutrition* Vol 7 (S1) pp 6-34
- Xinyu, T. 2019. War on poverty continues in 2019. Published February 22, 2019
- You, D., Jones, G. & Wardlaw, T. ,2011. United Nations Inter-Agency Group for Child Mortality Estimation 2011. Levels and Trends in Child Mortality. Report 2011. New York, UNICEF, 2011.
- Zaman, K., Roy, E., Arifeen, S.E., Rahman M. & Raqib R., 2008. Effectiveness of maternal influenza immunization in mothers and infants. *N. Engl. J Med* 359:1555-1564
- Zenebu, B.B. 2015. “Knowledge and practice of mothers towards exclusive breastfeeding and its associated factors in Ambo Woreda West Shoa Zone, Oromia Region, Ethiopia,” *International Journal of Research and Development in Pharmacy and Life Sciences*, vol. 4, no. 3, pp. 1590–1597, 2015.

## APPENDIX I

### Script of Community Drama Used

**Title: My Pikin by Oghenefego Ofili**

#### **Synopsis**

A young woman has just found out that she is pregnant and she is afraid she will lose her baby just like her elder sister did. In a bid to secure the life of her unborn child she seeks all the help she can get from whoever has any ideas to boost the chance of her child living.

She is faced with the challenge of following traditional practices or adhering to the matron's instructions at her community clinic.

#### **Objectives:**

- To promote pre-natal and post-natal clinic attendance
- To promote exclusive breastfeeding and adequate complementary feeding
- To promote the use of insecticide treated nets
- To promote Growth Monitoring, Child spacing and Oral Rehydration Therapy/Solution

#### **Cast**

Emeka	Amaka's mum
Amaka	Prophet
Efe	Matron
Kite	Nurse 1
Joy	Nurse 2
Ngozi	Pregnant woman (PW) 1 to 7
Ruky	Market woman (MW) 1 to 4
Ruky's husband	
Uche	
Native doctor	

## ACT ONE

### SCENE 1

*People are crying. Ngozi has just lost her 3 year old son who had battled with malaria and diahorrea for 2 weeks. The compound is noisy.*

**Crowd:** he was such a beautiful child

: this life is not fair

: Ha, how will Ngozi recover from this loss?

: common malaria! Chai!

*Women consoling Ngozi as she cries. Men carrying the child away for burial and Ngozi attempts to follow them, but she is stopped by other women around.*

### SCENE 2

*Amaka is doing the dishes when she suddenly feels nauseated and runs to a place she could vomit.*

**Amaka:** (singing as she does the dishes) "I have a father that will never ever fail me, ..."

*Feels nauseated and runs out.*

### SCENE 3

*Amaka comes into Kite's house in a hurry.*

**Kite:** Haba! Who is that? You want to break the door?

**Amaka:** Abeg open the door joor. (enters the house)

**Kite:** Hope all is well with you? This one wen you dey run like say person dey pursue you?

**Amaka:** My sister, nobody dey pursue me oh.



**Kite:** So why you kon dey run like that? Hope no problem?

**Amaka:** no problem. (wishpering to Kite) E be like say I don get bele.

**Kite:** (screams joyfully) Wow! Congrats my sister! God don do am at last.

(notices Amaka is not excited)

Amaka why you nor dey happy? You nor want pikin?

**Amaka:** I want oh. My sister I dey happy. Only say...

**Kite:** (Interrupts) only say wetin? My friend come make we go do test to confirm say n abele you get.

**Amaka:** Are you sure? I no wan go do test oh.

**Kite:** Which century you dey live sef? Make we dey go boo.

#### **SCENE 4**

*Amaka and Emeka are sitting outside their house.*

**Emeka:** My darling how was business today? Hope say you sell oh?

**Amaka:** I nor go today.

**Emeka:** (comes closer to his wife) why? Wetin happen? Hope say you well?

**Amaka:** (not allowing her husband touch her) I dey fine.

(she hands him the pregnancy test result)

**Emeka:** (takes some minutes to go through. Begins to dance) "God don bless me yanfu yanfu..."

(He looks up and notices Amaka is still moody). My wife this is good news na. why you dey frown face?

**Amaka:** nothing. I nor dey frown.

**Emeka:** (puts more pressure) Baby tell me what is bothering you. Did the doctor say something you are not telling me?

**Amaka:** (begins to sob) I don't want my child to die like Ngozi's child. How will I make sure my child lives a healthy life? I am afraid.

**Emeka:** (cuddles his wife and encourages her)

## ACT TWO

### SCENE 5

*Emeka and Uche are on their way to the farm.*

**Uche:** Oh boy your steps are different today oh. Even the way you dey bounce sef. Abi your wife give you...

**Emeka:** My brother, e be like say God just give me honey lick.

**Uche:** I talk am! Share the good news abeg

**Emeka:** My wife go soon born my first pikin

**Uche:** Emeka don score goal ooh!! Conrats my man! Oya you must carry me go drink today oh.

**Emeka:** No wahala. That one na small thing.

**Uche:** Your voice don change. Abi the story never finish?

**Emeka:** na my wife oh. She dey fear say the pikin go die like her sister pikin.

**Uche:** God forbid! I suggest you go to see Baba. The one wen dey opposite market side. He go fit tell una the future of the pikin.

**Emeka:** Ehen?

**Uche:** Yes oh. Na so me and my wife dey do am.

### SCENE 6

*Amaka, Joy and Kite are on their way from the market.*

**Kite:** Amaka how far? You don collect the test result?

**Amaka:** Yes oh. Sorry I nor tell you. Na positive.

**Joy:** Congratulations oh!

**Kite:** shey b I tell you. Congrats. You need to begin ante-natal clinic oh

**Amaka:** Which one be that? Abeg, I nor dey sick. Everything dey okay with me and my pikin

**Kite:** I know. Ante-natal clinic no be for sick people. Na the time when pregnant woman go go see nurse. Dem go check her say everything dey okay. Dem go even teach you how you go take care for your pikin for bele and when you born.

**Amaka:** Enhen? I nor know before oh. How you take know all these things sef?

**Kite:** You don forget say I get two children abi?

**Joy:** Madam professor. (turns to Amaka)

See, I advice you to register with that prophet oh. The man dey help women deliver safely. Infact he go cover your pikin both spiritually and physically make nothing happen to am.

**Kite:** Hey! Amaka you better close your ear to that type of advice oh.

## **SCENE 7**

*Amaka and Emeka visit the herbalist/native doctor*

**Native doctor:** (making incantations as Amaka and Emeka walk in)

Hey! Take off your shoes. You cannot enter the territory of the gods with your shoes.

*Emeka and Amaka quickly pull off their shoes and apologize.*

**Native doctor:** what brings you to the house of the gods?

**Emeka:** Baba we have heard a lot about you. We know you are a great 'dibia'.

**Native doctor:** Young man, spare me the accolades and go straight to the point

**Emeka:** I'm sorry Baba. I was ...

**Native doctor:** (interrupts) Your wife will give birth to a son. His future is very bright. I can see his star shining

(goes quiet in meditation)

**Amaka:** (Smiles with relief). Thank you baba. I am ...

**Native doctor:** (Interrupts) I smell evil. There are forces who do not want this child to shine as destined.

**Emeka:** (Exclaims) Ehhh!! What can we do baba? Please help us.

**Native doctor:** Relax. You have come to the right place and at the right time.

We will perform a special ritual to fight off all the evil people that do not want your child to progress.

**Emeka:** Whatever it is, we are ready.

**Amaka:** yes, we are ready.

**Native doctor:** You need to provide the egg of a coccrocodile that is 2 weeks old; the left eye of an eagle and the teeth of a horse for the ritual.

**Emeka:** (scratching his head in confusion) Ha! Baba! This one is difficult oh. Can you help us get the items? We are ready to pay any fee

**Native doctor:** Hmm. (makes some incantations) I understand. The gods will accept a fee of N20,000 only.

**Emeka:** Chai! Hmm. (looks at his wife)

**Amaka:** (looks away from her husband)

**Native doctor:** After this ritual has been performed, you must ensure your wife eats regularly. You must not allow her do any tedious work.

**Emeka:** Yes baba..

**Native doctor:** So when will you be ready for the ritual?

**Emeka:** By the nex eke market

**Native doctor:** Okay. See you then

Emeka and Amaka walk away.

## **SCENE 8**

*Amaka and Emeka go to the clinic to see the matron.*

**Emeka:** (Approaches a nurse) Good morning Madam

**Nurse 1:** Good morning Oga. How may I be of help?

**Emeka:** (Motions to Amaka to join him). My wife and I want to see the matron

**Nurse 1:** Enhen? Any problem?

**Amaka:** No problem nurse. I am pregnant

**Nurse 1:** Congratulations. You do not need to see the matron; any of us can attend to you

**Emeka:** Ha, madam nurse abeg no vex oh, but na matron we wan see. This pregnancy is very important to us oh.

**Nurse 1:** I understand. Like I said earlier, we are all qualified and can attend to you.

**Emeka:** (getting irritated, raises his voice) Haba! Is it by force? I said I want to see the matron. Shuuuu

**Matron:** (walks into the reception) What is happening here? Any problem?

**Nurse 1:** No Ma!

**Emeka and Amaka:** (same time as Nurse 1) Yes Ma!

**Matron:** Oga you can come into my office

*(Emeka and Amaka follow the matron)*

**Emeka:** My wife is pregnant and we want to make sure our baby is healthy. We do not want anything to happen to our baby.

**Amaka:** Matron, I do not want my child to die oh. I am afraid because this is the first time I am pregnant

**Matron:** It is okay. You have come to the right place. You will go outside and meet that nurse, she will register you. We have days for pregnant women to come to the hospital. We call it antenatal clinic.

During antenatal clinic we will teach you all you need to know as a pregnant woman to remain healthy and to ensure you deliver a healthy and strong baby.

We will also monitor your progress during the period.

**Amaka:** Okay. Thank you.

**Emeka:** Madam, can't you do the registration for us here? I don't want to go back to that nurse.

**Matron:** Madam you can go now.

*(Emeka and Amaka walk towards the nurse. She attends to them and they leave.)*

## **SCENE 9**

*Amaka's mum visits her.*

**Amaka's mum:** Who dey house oh! Kponpkpon!!

**Amaka:** (Comes out and sees her mother) Hey mama! Welcome. Your nor tell me say you dey come

**Amaka's mum:** How I go tell you? So I need to take permission before I visit my pikin?

**Amaka:** Mama nor be like that

**Amaka's mum:** Na like how? When you and your husband no gree tell me say you don get bele.

**Amaka:** mama which kind talk be this na? abeg come inside

**Amaka's mum:** I think say you go send me back to village. Abeg comot for road

## **ACT THREE**

### **SCENE 10**

*7 months later. Amaka is on her way to the clinic in company of Ruky.*

**Ruky:** Madam where is your husband; is he not joining you to clinic today?

**Amaka:** My sister, Emeka had to supply a customer some yam at the next village. He would have been here with me.

**Ruky:** I know. You people will just be making some of us jealous that our husbands do not even care how we fare

**Amaka:** Ha! My husband is trying oh. In fact he does not let me sweep or pound yam again since I became pregnant

**Ruky:** My dear, you are a lucky woman. All men should be like Emeka abeg.

**Amaka:** Yes oh. I am really blessed

**Ruky:** So how are you? This is your first pregnancy abi?

**Amaka:** yes oh. I am doing okay. I have been following all the nurse's instructions and all the things we learn at antenatal

**Ruky:** That is good

**Amaka:** I have been experiencing some pain at my waist area. I have not been able to sleep well for two days now.

**Ruky:** (using gestures like someone who has experience e.g nodding) Hmm, I understand. That pain can be annoying. I heard it is a sign from the spirit world. Once that thing starts it is better to see a spiritually powerful man.

**Amaka:** (shocked at Ruky's suggestion) Really! Why will you say that? I even plan to inform the nurse today when we get to the clinic.

**Ruky:** Don't even bother. All she will do is give you medicine. My sister if I were you I will go to the prophet. He will give you a permanent solution

**Amaka:** Ruky I am surprised that you will say this oh. You that will not miss any antenatal clinic day. You mean you still believe in other things?

**Ruky:** My sister dey there. It is better to mix both, than to use only one oh. What the nurse will not see, the prophet will see it.

**Amaka:** Hmm. You are right oh.

(They enter the clinic)

## **SCENE 11**

*Matron addressing pregnant women. Amaka and Ruky join other pregnant women in the clinic.*

**Matron:** Can someone remind us what we learnt last time? (allows the women speak)

**Pregnant woman 1 (PW1):** You taught is about how to take care of ourselves as pregnant women

**Matron:** Yes. Can we mention the thinkgs we should be doing?

**PW2:** eat lots of fruits and vegetables, and take water regularly

**PW3:** Do small small exercise like walk around the compound and take one tablet of folic acid daily

**PW4:** make sure we sleep under mosquito net to prevent malaria

**Matron:** Wow! Very good! It means you people listened very well last week. Today we will focus on things you should know about delivery and how to take care of your baby.

- Preparing yourself for delivery
- The items needed in your delivery bag
- The things needed by the baby
- Skin-to-skin contact with baby
- Colostrum
- Exclusive breastfeeding
- Etc

Any questions?

**PW2:** matron they said the milk that comes out for the first 3days is bad, is it true?

**Matron:** It is not true. You will be depriving the child of the nutrients that will help the child to fight diseases and sickness. This natural food has everything a baby needs for the first 5-6 months of their life.

**PW1:** when pikin dey hiccup people say make we give them water, na true?

**Matron:** Any child below 6 months should not be given water to drink. This is because a baby's system is not strong enough to fight infection and disease. Breast milk has over 70% water, so you can give the baby breast milk to stop the hiccups.

Other questions are asked. Then they go for medications ,etc.

## **SCENE 12**

*Ruky takes Amaka to see the prophet.*



**Ruky:** Your highness my friend here needs your help. She complained of back pain

**Prophet:** okay. That is an easy case. You have come to the right place. Just thank your friend. Not every back ache is ordinary.

**Amaka:** (sighs happily) Thank you baba!

**Ruky:** (interrupts) It is your highness, not baba.

**Amaka:** I am sorry your highness

**Prophet:** (takes a praying/meditating posture) take this sacred water and handkerchief. Let the handkerchief always be around your waist. From what I just saw, you have to give birth in this holy ground so that you and your baby will be safe.

**Amaka:** (not too comfortable with that, reluctantly collects the items from him). Thank you Ba... your highness

**Ruky:** Thank you your highness. Thank you for seeing us under such short notice.

(Amaka and Ruky leave the place.)

**Ruky:** Why did you make your face like you are not happy?

(Amaka remains quiet)

**Ruky:** Is it not you I am talking to?

**Amaka:** I don't know. I am not too comfortable with giving birth in this place

**Ruky:** Is that the problem? Well, as for me, I and my husband already agreed that we will have our baby here.

### **SCENE 13**

*Amaka informs her husband about her visit to the prophet*

**Emeka:** How was clinic today? Sorry I could not go with you today.

**Amaka:** it was okay. I understand.

**Emeka:** What did matron teach today?

**Amaka:** (shares the lessons)

**Emeka:** Chai! I missed oh. That means we need to start buying all the items for your delivery bag oh.

**Amaka:** Yes oh. May God provide for us.

**Emeka:** Amen. Hope you were not lonely on your way and back?

**Amaka:** Hmm. You want to feel important now oh. I was not lonely joor. I walked with Ruky.

**Emeka:** Yes na. how many husbands do you see going with their wives for antenatal? I have to brag abeg.

**Amaka:** I hear you. Thank you. I appreciate it.

**Emeka:** Now you are talking. So how is Ruky doing?

**Amaka:** she is fine

**Emeka:** She will soon give birth abi? Because her bele big well well.

**Amaka:** She even took me to her prophet.

**Emeka:** (flares) what?

**Amaka:** please calm down first na

**Emeka:** I have told you we need to follow what the matron says. I do not want any other person.

**Amaka:** I just want to make sure my baby is fine. I have been having waist pain and Ruky told me the prophet will give a permanent solution. And since we did not go back to baba I thought to get another spiritual opinion. Ruky even said...

**Emeka:** (*interrupts*) Amaka! Amaka!! Amaka!!! I am warning you to stay away from all these people that are giving you wrong advice about my child

**Amaka:** Is it not my child too? I do not want anything to happen to my baby. (breaks down in tears)

**Emeka:** (*cuddles his wife*) nothing will happen to our baby. Let's just stick to what the matron tells us

*Emeka helps her lie down under the mosquito net and they say their good nights.*

## ACT FOUR

#### **SCENE 14**

*Ruky is at the prophet's place to give birth. As she is pushing, the baby comes out but needs urgent medical attention. The prophet is confused. He tells Ruky's husband to take her away from this premises. Ruky's husband is confused. In the midst of confusion*

**Ruky:** (Crying in pain)

**Prophet:** Oga please take your wife away from my clinic. This is an evil child

**Ruky's husband:** But your highness where will I take them to?

**Prophet:** I do not care. I don't want any abomination in this place

**Ruky's husband:** (pacing) let me take her to the clinic

#### **SCENE 15**

*Ruky is at the hospital and is visited by Kite and Efe*

**Ruky's husband:** Ah you are welcome oh.

**Efe:** Congrats on the arrival of your baby

**Kite:** Ruky baby, congratulations oh! Thank God for safe delivery.

**Ruky:** (speaking faintly) Thank God. Na God save me and my pikin oh.

**Kite:** Na so I hear oh. So where is your baby now?

**Ruky's husband:** she is at the intensive care unit (ICU)

**Efe:** What did the doctors say?

**Ruky's husband:** They said we are lucky. That our baby was short of blood. Even my wife kept bleeding. I just thank God

**Kite:** Yes oh, may God perfect what He started

**Everybody:** Amen.

#### **SCENE 16**

*Kite in the market sharing powder to celebrate Amaka's safe delivery*

**Kite:** Amaka don born boy oh! God don do am oh!

**Market woman 1 (MW1):** Thank God oh

**MW2:** Ehhyaaa. Thank God

**MW3:** who be Amaka sef?

**MW2:** That woman when dey sell tomatoes for mama chichi shop side

**MW3:** Okay. Ehhya thank God.

## **SCENE 17**

*Amaka at the hospital*

**Amaka:** (carrying her baby and positioning him to be breast fed) this my pikin just resemble he papa

**Amaka's mum:** wetin you wan do? Common stop that.

**Amaka:** Mama wetin again na?

**Amaka's mum:** You nor know say the milk wen dey comot na bad one. As from 3 days before the good milk go come out

**Amaka:** Mama all those things no be true. Them tell us say this milk when dem call colostrum go help my pikin fight sickness and disease. E go help am build the immune system.

**Amaka's mum:** Keep quiet! Wetin you know? You know how many children I born? 10! 10 children! You wen just born first pikin dey teach me.

**Amaka:** Mama I know say you get experience pass me. But na wetin matron tell us I go do

**Amaka's mum:** Who be this matron sef? You nor go give my grand pikin poison oh (attempting to stop Amaka from breast feeding)

**Matron:** What is happening here? Mama any problem?

**Amaka's mum:** Na you dey teach my daughtt rubbish abi?

**Amaka:** (screams) Mama!!!

**Matron:** Mama please we do not like people to make noise here. Your daughter and grandchild need rest.

**Amaka's mum:** Why you allow my daughter give her pikin breast when e never reach 3 days?

**Matron:** mama the first milk when dey come out when woman born na very good milk. The milk contain plenty good things to help the baby remain healthy and strong. That wilk go help the pikin get power to fight sickness and disease. As the pikin dey suck breast he go dey know e mama when born am. So them go get closeness as mama and pikin.

**Amaka's mum:** Ehhennn? Okay. All these oyibo people. If doctor say e good na e b say e good. Wetin I know sef?

## SCENE 18

*Amaka is at home.*

**Amaka's mum:** You nor see say the pikin wan drink water?

**Amaka:** Mama, my pikin never reach to dey drink water

**Amaka's mum:** Ookpetuu!!! Which one be that one again? Give this pikin water make he stop to dey hiccup

**Emeka:** (*Enters the room*) Give which pikin water? Mama my pikin no go drink water until he reach 6 months. Na only breast milk he go dey take.

**Amaka' mum:** You sef don turn doctor abi? Na kill una wan kill this pikin oh.

**Amaka:** (Screams) God forbid! My pikin no go die. I dey do exclusive breastfeeding. E mean say na only breastmilk my pikin go take as food until he reach 6months.

**Amaka's mum:** Okay oh! This one don pass me. Na your pikin. Make I come dey go my house, as una no need me for here.

**Amaka:** Mama no be like that oh. Abeg no vex. Na wetin matron talk I wan do.

## SCENE 19

*Amaka is at the clinic for immunization and post-natal care.*

**Matron:** (looks at the clinic card) You need to come for growth monitoring every month. I am not happy with his growth curve. Have you been feeding him well?

**Amaka:** Yes Ma. But he no like food.

**Matron:** like which food?

**Amaka:** If I give am beans he nor dey chop. Na only rice. Even vegetable he go throw way am

**Matron:** Okay. You don try to give am other types of beans food like moi moi and akara?

**Amaka:** No

**Matron:** what about akamu with milk inside?

**Amaka:** I dey give am akamu but no milk

**Matron:** Try to add milk. If you nor fit buy milk, you fit make soyabeans milk and even grinded crayfish. To add more nutrients to your pikin food.

**Amaka:** Okay. I nor sabi make the soyabeans milk oh.

**Matron:** the nurse outside will teach you. Make sure you add vegetables to his diet.

**Amaka:** Okay. Ehen! I notice say last week my pikin come dey shit plenty and he body hot

**Matron:** so what did you do?

**Amaka:** Nothing oh. I just use wet towel dey clean he body

**Matron:** Next time bring him to the clinic. Can you make Oral Rehydration therapy solution?

**Amaka:** No. I don forget

**Matron:** Okay. In case your pikin dey get diahorrea again, make ORT for him. Take 1 litre of clean water (freshly boiled), add 8 cubes of sugar and one teaspoon of salt. Mix very well and give your baby to drink.

**Amaka:** Thank you matron

**Matron:** You are welcome. Take care. Next person!

## **SCENE 20**

*Ifeanyi is 3years old and it is his birthday party.*

**Emeka:** (Is very happy entertaining guests)

**Amaka:** (Is serving guests)

*Many of their friends are around*

**Amaka:** (feels nauseated and runs out. She goes to vomit)

**Emeka:** (finds Amaka vomiting) Ah my dear what is the matter? Wetin you chop?

**Amaka:** (cleans her mouth and looks at Emeka in a funny way)

**Emeka:** (understands the look) E don enter?! Baba God I thank you oh!

(Carefully takes his wife back inside to join the party)

END

APPENDIX 2

STUDY QUESTIONNAIRE

**University of Ibadan**

**Department of Human Nutrition**

**Research Title:** Improving Mothers' Practice of Child Survival Strategies Through Behaviour Change Communication in Delta State, Nigeria  
Questionnaire for Pregnant and Lactating Mothers

Dear Madam,

Good day. My name is Oghenefego Isikwenu and I am a student from the Department of Human Nutrition, University of Ibadan. I will like you to give me a few minutes of your time to complete this questionnaire. This is a research work titled 'Improving Infant Nutrition and Health Care Practices of Mothers through Behaviour Change Communication in Delta State of Nigeria'. This is part of the requirements for the attainment of a PhD in Human Nutrition. The information you provide is strictly for research purposes. Please sign below to give your consent.

Thank you.

Sign & Date: \_\_\_\_\_



<b>SECTION 1a: IDENTIFICATION OF RESPONDENT</b>			
	Questionnaire number		
	Interviewer code		
	Ward number		
	Local Government Area		
	Community		
	Date		
	Duration	Start time: End time:	
<b>SECTION 1b: Information on Index Child</b>			
	Index Child's age (in months)		
	Index child's sex		
<b>SECTION 1c: Demographic and Background Characteristics of Mother</b>			
1.	How old (in years) were you on your last birthday?	<input type="radio"/> Age in years: <input type="radio"/> Do not know	
2.	Religion	<input type="radio"/> Christian <input type="radio"/> Moslem <input type="radio"/> African Traditional Religion <input type="radio"/> Others. Specify _____	
3.	Ethnicity	<input type="radio"/> Isoko <input type="radio"/> Urhobo <input type="radio"/> Ika <input type="radio"/> Anioma <input type="radio"/> Itshekiri <input type="radio"/> Ukwani <input type="radio"/> Others. Specify _____	
4.	How many under 5years children live in this	<input type="radio"/>	

	household?		
5.	Currently, what is your marital status?	<ul style="list-style-type: none"> <li>• Married</li> <li>• Single</li> <li>• Divorced</li> <li>• Widowed</li> </ul>	
6.	Are you the only wife of your husband?	<ul style="list-style-type: none"> <li>○ Yes</li> <li>○ No</li> <li>○ Do not know</li> </ul>	
<b>• SECTION 2: Socioeconomic Characteristics of Household</b>			
7.	What is the highest level of education that you have completed?	<ul style="list-style-type: none"> <li>○ Primary</li> <li>○ Secondary</li> <li>○ Tertiary</li> <li>○ No formal education</li> </ul>	
8.	What do you do for a living?	<ul style="list-style-type: none"> <li>○ Fulltime housewife</li> <li>○ Student</li> <li>○ No Job</li> <li>○ Housewife with some part time work</li> <li>○ Self employed</li> </ul>	
9.	Which best describes your husband or partners occupation?	<ul style="list-style-type: none"> <li>○ Fulltime House Husband</li> <li>○ Student</li> <li>○ No Job</li> <li>○ Has some work part time</li> <li>○ Self employed</li> </ul>	
10.	On an average, how much do you earn as income monthly?	<ul style="list-style-type: none"> <li>○ &lt;N10,000</li> <li>○ N10,000 – N30, 000</li> <li>○ N40,000 – N70, 000</li> <li>○ N80,000 –N120, 000</li> <li>○ N130, 000 – N160, 000</li> <li>○ N170, 000 and Above</li> <li>○ Do not know</li> </ul>	
11.	On an average, how much does your husband/partner earn as income monthly?	<ul style="list-style-type: none"> <li>○ &lt;N10,000</li> <li>○ N10,000 – N30, 000</li> </ul>	

		<input type="radio"/> N40,000 – N70, 000 <input type="radio"/> N80,000 –N120, 000 <input type="radio"/> N130, 000 – N160, 000 <input type="radio"/> N170, 000 and Above <input type="radio"/> Do not know	
12	How many hours do you spend outside your home at work daily?	<input type="radio"/> Less than 6hours <input type="radio"/> 6-8hours <input type="radio"/> More than 8hours	
13	How often do you go to work in a week?	<input type="radio"/> Rarely <input type="radio"/> Once a week <input type="radio"/> 2-3days weekly <input type="radio"/> 4-6days weekly <input type="radio"/> Daily	
14	Do you take your baby to work?	<input type="radio"/> Yes <input type="radio"/> No	
15	How often do you give your baby undivided attention daily?	<input type="radio"/> Less than 3hours (Not often) <input type="radio"/> Up to 5hours (Often) <input type="radio"/> More than 5hours (Very often)	
16	What material was used in building your house?	<input type="radio"/> Bricks <input type="radio"/> Thatches <input type="radio"/> Bamboo <input type="radio"/> Roofing sheets <input type="radio"/> Wood <input type="radio"/> Others (specify): _____	
17	How many rooms are in your house?	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> More than 3	
18	Which appliance do you have?	<input type="radio"/> Radio <input type="radio"/> Television <input type="radio"/> Refrigerator	
19	Are they functional?	<input type="radio"/> Radio <input type="radio"/> Television	

		<input type="radio"/> Refrigerator	
20.	What type of toilet do you use?	<input type="radio"/> Latrine <input type="radio"/> White Closet (WC) <input type="radio"/> Bush <input type="radio"/> None <input type="radio"/> Others (specify):_____	
21.	What is your major source of electricity?	<input type="radio"/> No electricity <input type="radio"/> PHCN (Government supply) <input type="radio"/> Generator <input type="radio"/> Solar panel <input type="radio"/> Others (specify):_____	

<b>SECTION 3: Family and Community Support Systems available to Mothers</b>			
22.	Did you have any information/education on pregnancy as a teenager?	<input type="radio"/> Yes <input type="radio"/> No (skip to Qn.24)	
23.	What was your source of information on pregnancy as a teenager?	<input type="radio"/> Mother <input type="radio"/> TV/Radio (mass media) <input type="radio"/> School teacher <input type="radio"/> Friends (peers) <input type="radio"/> Books/flyers/posters <input type="radio"/> Others. Specify_____	
24.	Did you receive health education during antenatal?	<input type="radio"/> Yes <input type="radio"/> No	
25.	What topics were covered during health education? (Mention)	<input type="radio"/> Routine ANC Care <input type="radio"/> Labour and delivery preparation <input type="radio"/> How to Care for infant <input type="radio"/> Initiating breastfeeding <input type="radio"/> Infant feeding/infant care <input type="radio"/> Postnatal care <input type="radio"/> Under-five care <input type="radio"/> Malaria	

		<ul style="list-style-type: none"> <li>○ Nutrition for mother during pregnancy</li> <li>○ HIV &amp; AIDS</li> <li>○ HIV &amp; AIDS prevention</li> <li>○ HIV &amp; AIDS transmission</li> <li>○ VCT</li> <li>○ PMTCT</li> <li>○ Others (specify) _____</li> </ul>
26.	What method was used in educating you at the health facility?	<ul style="list-style-type: none"> <li>○ Talk/seminar</li> <li>○ Announcements</li> <li>○ Flyers and posters</li> <li>○ Videos</li> <li>○ Songs</li> <li>○ Drama</li> <li>○ Others (specify) _____</li> </ul>
27.	What services did you get during antenatal visit?	<ul style="list-style-type: none"> <li>○ Weighing</li> <li>○ Iron tablets</li> <li>○ Folic acid</li> <li>○ De-worming (Vermox)</li> <li>○ Hb test</li> <li>○ Multivitamins</li> <li>○ STI screening</li> <li>○ Family planning</li> <li>○ PAP (smear)</li> <li>○ Tetanus toxoid injection (TT shots)</li> <li>○ Others (specify) _____</li> </ul>
28.	Has anyone taught you about infant feeding?	<ul style="list-style-type: none"> <li>○ Yes</li> <li>○ No</li> <li>○ Do not know</li> </ul>
29.	Who else can provide information on infant feeding?	<ul style="list-style-type: none"> <li>○ No where</li> <li>○ Health centre</li> <li>○ Health/community worker</li> <li>○ Sister/brother</li> <li>○ Sister/brother in law</li> </ul>

		<input type="radio"/> Mother <input type="radio"/> Grandmother <input type="radio"/> Mother in law <input type="radio"/> Spouse/father to baby <input type="radio"/> Friend/neighbour <input type="radio"/> Internet <input type="radio"/> Others _____ <input type="radio"/> Do not know
30.	Who has supported you in feeding your infant?	<input type="radio"/>
31.	Who assisted you with the delivery of (index child)?	<input type="radio"/> TBA <input type="radio"/> Medical doctor <input type="radio"/> Midwife/nurse <input type="radio"/> Family member <input type="radio"/> Neighbour/friend <input type="radio"/> Self/no one <input type="radio"/> Others _____
32.	What services did you get after delivery?	<input type="radio"/> Advice on Infant feeding <input type="radio"/> Assistance in starting breastfeeding <input type="radio"/> Infant feeding demonstration
33.	Was Vitamin A given with 6 weeks of giving birth?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Do not know
34.	Does any other person provide care for your baby?	<input type="radio"/> Yes <input type="radio"/> No
35.	Has (index child) received vitamin A?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> (NA if child is 0-5.9months)
36.	How long did it take before you carried your baby after delivery?	<input type="radio"/> Not up to an hour <input type="radio"/> No. of hours _____ <input type="radio"/> No. of days _____ <input type="radio"/> Not given <input type="radio"/> Do not know

37.	Did you ever receive assistance to start breast feeding (index child)?	<input type="radio"/> Yes <input type="radio"/> No
38.	Who mainly gave you assistance to start breast feeding (index child)?	<input type="radio"/> My husband/infant's father <input type="radio"/> My husband/not infant's father <input type="radio"/> My mother <input type="radio"/> A sister/sister in law <input type="radio"/> My mother in law <input type="radio"/> My niece <input type="radio"/> The nanny <input type="radio"/> Older child <input type="radio"/> A friend/neighbour <input type="radio"/> Health worker at PHC <input type="radio"/> Health worker in Community <input type="radio"/> Others _____ <input type="radio"/> Do not know

**SECTION 4: Mother's Knowledge of Child Survival Strategies**

<b>SECTION 4: Mother's Knowledge of Child Survival Strategies</b>		
39.	What should a woman do when she finds out she is pregnant?	<input type="radio"/> Nothing <input type="radio"/> Start attending antenatal clinic <input type="radio"/> Eat different kinds of foods to remain healthy <input type="radio"/> Go on with her normal activities <input type="radio"/> Go for prayers <input type="radio"/> Others (specify): _____
40.	Should a pregnant woman eat more food during pregnancy?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Do not know
41.	What is the danger of malaria during pregnancy?	<input type="radio"/> Causes a woman to give birth to a small baby with low weight <input type="radio"/> Makes pregnant woman to have less blood in her body <input type="radio"/> Does not have any effect

		<ul style="list-style-type: none"> <li>○ Do not know</li> </ul>	
42	How can malaria be prevented during pregnancy?	<ul style="list-style-type: none"> <li>○ Do not know</li> <li>○ Sleep under insecticide treated nets</li> <li>○ Maintain a clean environment</li> <li>○ Go to the clinic regularly and adhere to doctor's instructions</li> </ul>	
43	Are there any age restrictions for getting pregnant?	<ul style="list-style-type: none"> <li>○ Yes</li> <li>○ No</li> <li>○ Do not know</li> </ul>	
44	At what age is it not safe for a woman to get pregnant?	<ul style="list-style-type: none"> <li>○ Before 18 years</li> <li>○ Before 21 years</li> <li>○ After 28 years</li> <li>○ After 35 years</li> <li>○ Do not know</li> </ul>	
45	What is the recommended birth spacing period between children?	<ul style="list-style-type: none"> <li>○ 1 year</li> <li>○ 2 years</li> <li>○ Do not know</li> </ul>	
46	When should a baby be introduced to breast milk?	<ul style="list-style-type: none"> <li>○ 1 day after birth</li> <li>○ Within an hour after birth</li> <li>○ Do not know</li> </ul>	
47	What are the benefits of skin-to-skin touch with your baby after delivery?	<ul style="list-style-type: none"> <li>○ No benefit</li> <li>○ Helps keep the baby warm and maintain baby's temperature</li> <li>○ Encourages the baby to start breast feeding early enough</li> <li>○ Establishes bonding between mother and baby</li> <li>○ Do not know</li> </ul>	
48	What are the benefits of giving a baby the first yellowish milk (colostrum) after birth?	<ul style="list-style-type: none"> <li>○ No benefits</li> <li>○ Provides a protective lining to the baby's gut</li> <li>○ Helps the gut to develop</li> <li>○ Protects the baby from common illnesses</li> </ul>	



		<ul style="list-style-type: none"> <li>○ Do not know</li> </ul>	
49	Do you know about exclusive breastfeeding?	<ul style="list-style-type: none"> <li>○ Yes</li> <li>○ No</li> </ul>	
50	What is exclusive breastfeeding?	<ul style="list-style-type: none"> <li>○ Feeding a baby with only breast milk</li> <li>○ Feeding a baby with breast milk and water only</li> <li>○ Feeding a baby with only breast milk for a period of 6 months</li> <li>○ Feeding a baby with only breast milk for a period of 3 months</li> <li>○ Do not know</li> </ul>	
51	How early should a baby be introduced to breast milk after birth?	<ul style="list-style-type: none"> <li>○ Two weeks later</li> <li>○ 3 days later</li> <li>○ At least an hour after birth</li> <li>○ Immediately after birth</li> <li>○ Do not know</li> </ul>	
52	How many times should a baby be breast fed in a day?	<ul style="list-style-type: none"> <li>○ On demand (anytime the baby wants)</li> <li>○ 8 times a day</li> <li>○ 3 times a day</li> <li>○ Do not know</li> </ul>	
53	When could a baby be introduced to other foods?	<ul style="list-style-type: none"> <li>○ Immediately after birth</li> <li>○ One month after birth</li> <li>○ 3 months after birth</li> <li>○ 6 months after birth</li> <li>○ Do not know</li> </ul>	
54	What are the benefits of breast feeding for the mother?	<ul style="list-style-type: none"> <li>○ Reduces bleeding immediately after delivery</li> <li>○ Reduces weight of the mother</li> <li>○ Helps the womb to return to pre-pregnancy position</li> <li>○ Reduces the chances of ovarian and breast cancer</li> </ul>	

		<input type="radio"/> Do not know	
55	When should additional semi-solid food be given to baby besides breast milk?	<input type="radio"/> 6 months <input type="radio"/> 2 months <input type="radio"/> 1 month	
56	What should be used in feeding the baby complementary food?	<input type="radio"/> Feeding bottle <input type="radio"/> Cup/plate <input type="radio"/> Anything	
57	How do you maintain hygienic conditions around your baby?	<input type="radio"/>	
58	What foods are good sources of Vitamin A?	<input type="radio"/>	
59	What foods are good sources of Iron?	<input type="radio"/>	
60	What foods are good sources of Iodine?	<input type="radio"/>	
61	What foods are good sources of Zinc?	<input type="radio"/>	
62	Have you heard of growth monitoring?	<input type="radio"/> Yes <input type="radio"/> No (skip to Qn. 66)	
63	What is growth monitoring?	<input type="radio"/> Taking the baby to be weighed by the health worker regularly <input type="radio"/> Looking if a baby is growing <input type="radio"/> Measuring the height and weight of a baby to document the growth process <input type="radio"/> Do not know	
64	How often should a baby be taken for growth monitoring in the first year?	<input type="radio"/> Every day <input type="radio"/> Once a week <input type="radio"/> Every month <input type="radio"/> Every 3 months <input type="radio"/> Do not know	
65	What are the benefits of growth monitoring?	<input type="radio"/> There are no benefits <input type="radio"/> Know how the baby is growing <input type="radio"/> Know if the baby has health problems <input type="radio"/> Do not know	
66	Do you know about Oral Rehydration Therapy	<input type="radio"/> Yes	

	(ORT)?	<input type="radio"/> No (skip to Qn.71)	
67	What is the benefit of ORT?	<input type="radio"/> No benefits <input type="radio"/> Prevents dehydration in infants <input type="radio"/> Do not know	
68	When should a child be given ORT?	<input type="radio"/> When there is no other food <input type="radio"/> When a child has diarrhea <input type="radio"/> When a child is sick <input type="radio"/> Do not know	
69	What ingredients are used to make ORT?	<input type="radio"/> Do not know <input type="radio"/> Salt, sugar and water <input type="radio"/> Salt, pap and water	
70	How is ORT made?	<input type="radio"/> Do not know <input type="radio"/> Mix half teaspoon of salt with 8 flat teaspoons of sugar in 1 litre of clean water <input type="radio"/> Mix sugar and salt until it is sweet	
71	Have you heard about immunization?	<input type="radio"/> Yes <input type="radio"/> No (skip to Qn.75)	
72	When does a baby get the first immunization?	<input type="radio"/> Any time the mother goes to clinic <input type="radio"/> One month after birth <input type="radio"/> Immediately after birth <input type="radio"/> Do not know	
73	At what time does a baby get immunized against TB and Polio?	<input type="radio"/> One week after birth <input type="radio"/> At birth <input type="radio"/> 2 years after birth <input type="radio"/> Do not know	
74	What is the last immunization given to an infant?	<input type="radio"/> Do not know <input type="radio"/> Meningitis, Thyphoid fever <input type="radio"/> Yellow fever	
75	How is exclusive breastfeeding beneficial?	<input type="radio"/> Protects health <input type="radio"/> Improves mother's bonding with child <input type="radio"/> Perfect food for babies <input type="radio"/> Keeps babies happy <input type="radio"/> Others _____	

		<ul style="list-style-type: none"> <li>○ Not beneficial to baby</li> <li>○ Do not know</li> </ul>	
76.	What immunization has (index child) been given?	<ul style="list-style-type: none"> <li>○ BCG, OPV1, HEPBO</li> <li>○ OPV1, Pentavalent 1, PCV (optional), Rotavirus</li> <li>○ Measles</li> <li>○ Yellow fever</li> <li>○ MMR, OPV, chicken pox</li> <li>○ Meningitis, Thyphoid fever</li> <li>○ Do not know</li> </ul>	

<b>SECTION 5: Mother's Attitude towards Child Survival Strategies</b>		
77.	A pregnant woman should make sure she eats healthy and nutritious foods	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
78.	Women must attend antenatal clinic regularly when they are pregnant	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
79.	A pregnant woman can smoke	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
80.	Pregnant women should engage in light exercises	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
81.	Every pregnant woman must take advantage of the health centre in her community	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
82.	A woman can get pregnant as often as she wants	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
83.	There should not be age restrictions to getting	<ul style="list-style-type: none"> <li>▪ Agree</li> </ul>

	pregnant	<ul style="list-style-type: none"> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
84.	Traditional care in pregnancy is more important than medical care	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
85.	It is better to give birth with a TBA than at a health centre	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
86.	The first breast milk that is yellowish in colour is good for a baby's health	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
87.	Introducing a baby to breast milk after birth has health benefits	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
88.	A baby can be given water after 2 months	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
89.	A baby can only be given water 6 months after birth	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
90.	A baby should be breast fed on demand	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
91.	Monitoring the growth of a baby is very important	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
92.	Growth monitoring can help discover if a baby has hidden illnesses that are preventing normal growth and development	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
93.	It is important that a mother takes her baby for growth monitoring at the health centre	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
94.	The baby must be weighed once every month for the	<ul style="list-style-type: none"> <li>▪ Agree</li> </ul>

	first year	<ul style="list-style-type: none"> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
95.	ORT can save the life of a baby suffering from diarrhea	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
96.	There is no particular measurement for making ORT	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
97.	ORT does not help rehydrate a baby with diarrhea	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
98.	ORT can only be made by health workers	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
99.	The immunization of babies should not be taken for granted	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
100.	Immunizing a baby protects him/her from certain infections and diseases	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
101.	Immunization should not be compulsory	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
102.	A child who is not immunized is at risk of getting certain viral infections	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>
103.	A baby's father must approve immunization before he/she can be immunized	<ul style="list-style-type: none"> <li>▪ Agree</li> <li>▪ Disagree</li> <li>▪ Not necessarily</li> </ul>

**SECTION 6: Mother's Practice towards Child Survival Strategies**

	<b>SECTION 6: Mother's Practice towards Child Survival Strategies</b>	
104.	How early should a pregnant woman attend antenatal clinic?	<input type="radio"/>
105.	During your last pregnancy did you attend antenatal?	<input type="radio"/> Yes <input type="radio"/> No
106.	How many months was your pregnancy when you first attended antenatal?	<input type="radio"/> _____ months
107.	How many times did you attend antenatal during last pregnancy (index child)?	<input type="radio"/> Number of visits given by: _____ <input type="radio"/> Number of visits on ANC card: _____ <input type="radio"/> Do not remember
108.	Who has provided infant feeding information to you?	<input type="radio"/>
109.	Have you taken your baby for growth monitoring before?	<input type="radio"/> Yes <input type="radio"/> No
110.	When he/she had diarrhea did you administer ORT?	<input type="radio"/> Yes <input type="radio"/> No
111.	Have you gone for immunization?	<input type="radio"/> Yes <input type="radio"/> No
112.	How many times have you gone to the clinic after delivery?	<input type="radio"/> Within the 1 <sup>st</sup> week of delivery _____ <input type="radio"/> From the 2 <sup>nd</sup> and 6 weeks of delivery _____ <input type="radio"/> None
113.	How old was your baby on your first postnatal visit?	<input type="radio"/> _____ days old <input type="radio"/> _____ weeks old
114.	Have you ever breast fed (index child)?	<input type="radio"/> Yes <input type="radio"/> No(skip to Qn.116)
115.	At what age will you stop breastfeeding your baby?	<input type="radio"/> Intended age in months _____ - <input type="radio"/> Do not know

<b>SECTION 7: Mother's Practice of Child Survival Strategies</b>		
116.	How should a woman care for herself before getting pregnant?	<input type="radio"/> Eat healthy and nutritious meals <input type="radio"/> Start taking folic acid <input type="radio"/> Nothing <input type="radio"/> Exercise regularly <input type="radio"/> Do not know <input type="radio"/> Others (specify)_____
117.	If No, who took care of you during pregnancy (Index child)?	<input type="radio"/> No one <input type="radio"/> Traditional Birth Attendant <input type="radio"/> Community health worker <input type="radio"/> Mother/Grandmother <input type="radio"/> Others (specify)_____
118.	Which facility was your main care centre?	<input type="radio"/> Hospital <input type="radio"/> Clinic <input type="radio"/> Mobile <input type="radio"/> Company clinic <input type="radio"/> Others (specify)_____
119.	Did you receive health education during antenatal?	<input type="radio"/> Yes <input type="radio"/> No
120.	What do you use in feeding your child with milk?	<input type="radio"/> Feeding bottle <input type="radio"/> A feeding cup without a spout <input type="radio"/> Spoon <input type="radio"/> A feeding cup with a spout <input type="radio"/> Other (specify)_____ <input type="radio"/> Breast feeding only
121.	How many times does your child breast feed or take other liquids when unwell?	<input type="radio"/> More than usual <input type="radio"/> Less than usual <input type="radio"/> Same as usual
122.	Who decides how to feed your baby?	<input type="radio"/> Self <input type="radio"/> My husband/father to baby <input type="radio"/> My mother <input type="radio"/> Other senior male <input type="radio"/> Other senior female



		<input type="radio"/> Health worker <input type="radio"/> Others _____ <input type="radio"/> Do not know
123.	When was the last time you took (index child) for growth monitoring?	<input type="radio"/> _____
124.	How often do you go for growth monitoring?	<input type="radio"/> _____
125.	Where was (index child) delivered?	<input type="radio"/> At home <input type="radio"/> Clinic <input type="radio"/> In a hospital <input type="radio"/> Specify others _____ <input type="radio"/> Do not remember
126.	When did you start breastfeeding your baby?	<input type="radio"/> Not up to an hour (skip to Qn.128) <input type="radio"/> No. of hours _____ <input type="radio"/> No. of days____ <input type="radio"/> Can't remember
127.	Why was breastfeeding not initiated immediately?	<input type="radio"/> Mother was ill <input type="radio"/> Infant was ill <input type="radio"/> Infant premature <input type="radio"/> Cultural reasons <input type="radio"/> Cleaning up after birth/placenta <input type="radio"/> Infant not brought to mother immediately <input type="radio"/> Mother had made an informed choice not to breast feed <input type="radio"/> Other _____ <input type="radio"/> Do not know
128.	Are you still breastfeeding (index child)?	<input type="radio"/> Yes <input type="radio"/> No
129.	Do you empty one side before giving the baby the other breast?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not sure

**SECTION 8: Anthropometric characteristics of mother-child pair**

<b>Parameters</b>	<b>Mother</b>	<b>Child</b>
Height (cm)		
Weight (kg)		
MUAC (cm)		
Head circumference (cm)		

## APPENDIX 3

### **Focus Group Discussion Question Guide for Health Workers**

1. How will you describe the nutritional and health status of children in this community?
2. How will you rate pregnant women's registration for prenatal and antenatal care?
3. What are the various methods used to provide information for pregnant women in the community?
4. What are the most common illnesses children deal with in this community?
5. What do you know about GOBIFF?
6. What is the full meaning of GOBIFF?
7. What do you know about the Essential Nutrition Actions?
8. What are the essential nutrition actions
9. What are the challenges threatening the health of pregnant women and children in this community?
10. How do you describe the attitude and behaviour of mothers to child care practices and ENA?
11. How do you suggest these challenges are managed?
12. How do you go about immunization in this health centre?
13. Have you faced any challenge with immunization?
14. What do you understand by exclusive breastfeeding?
15. How have you encouraged mothers to breastfeed exclusively?
16. When can a mother introduce water to an infant's feeding?
17. How often is growth monitoring done here?
18. What challenges have you encountered in performing regular growth monitoring?
19. Who do you think can help in promoting healthy nutritional practices?

## APPENDIX 4

### **Focus Group Discussion Guide for Pregnant/Lactating Women**

1. What did you know about pregnancy before you got pregnant? Or as a teenager?
2. What was your source of information on pregnancy before you got pregnant or as a teenager?
3. How often do you attend antenatal clinic?
4. What are the major information highlighted on your personal and child care at the clinic?
5. What do you know about exclusive breastfeeding?
6. How have you been practicing exclusive breastfeeding?
7. What are the various challenges faced in practicing exclusive breastfeeding?
8. At what point did you start giving your baby water?
9. For how long do you breastfeed?
10. When do you introduce other foods to your baby (asides breast milk)?
11. How do you introduce other foods to your baby?
12. What type of food do you give as complementary food to your baby?
13. What factors influence the type of complementary food you give your baby?
14. What do you think about insecticide treated nets?
15. What is best way to use insecticide treated nets?
16. What do you think about immunization for babies?
17. What are the various ones to have for your baby?
18. What are the most common illnesses children have in this community?
19. What are the things in the community that prevent you from practicing what the health providers tell you?
20. How often do you go for growth monitoring for your baby?
21. How often does your baby fall ill in a month?
22. What precautions do you take to ensure a hygienic environment?
23. What key messages can you remember on TV, radio, poster, flyer, etc. that you have heard or seen about nutrition for pregnant women and children?
24. What do you think about the messages, those who provide the messages and how they send the message?

25. What were the new things you learnt from those messages?
26. How were the messages helpful to you?
27. How has it been trying to putting them to practice?
28. What kind of nutrition program have you encountered in this community in the past?