EFFECT OF TRAINING ON COMPLEMENTARY FEEDING, KNOWLEDGE AND PRACTICES AMONG MOTHERS ATTENDING IMMUNIZATION CLINICS AT ADEOYO MATERNITY TEACHING HOSPITAL, IBADAN, NIGERIA

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DEDICATION

This work is dedicated to God the Father, Son and Holy Spirit.

ABSTRACT

The World Health Organization recommends that infants from age 6 months should be introduced to complementary foods, with continued breastfeeding, to meet their nutritional needs. However, malnutrition among infants in Nigeria has been reportedly high due to inappropriate feeding practices among nursing mothers. Therefore, this study was designed to assess the effect of training on knowledge and practices of complementary feeding among nursing mothers attending the immunization clinic of Adeoyo Maternity Teaching Hospital (AMTH) Ibadan, Oyo state.

A quasi-experimental study, involving two phases was conducted in two immunisation clinics: AMTH, Yemetu, Ibadan as the Experimental group (EG) and Adeoyo State Hospital, Ring Road as the control group (CG). The first phase was a baseline survey which employed a 3- stage sampling technique to recruit 240 mothers of infants, aged ≥ 6 months (120 each from the two immunisation clinics). A validated semi-structured questionnaire was used to obtain information on knowledge, attitude and practice of mothers on complementary feeding. The second phase consisted of a day training intervention for the EG which was designed using the results of the baseline survey. Systematic random sampling method was used to select 30 mothers from the EG for the training and 30 mothers for the CG. Both groups completed a pre and post-test questionnaire which assessed the knowledge (22 points), attitude (9 points) and practice (12 points) of mothers on complementary feeding. Knowledge score of ≤ 14 was categorized as poor, 15-16 as fair and ≥ 17 as good. Attitude score of ≤ 6 was categorized as negative and ≥ 7 as positive. Practice score of ≤ 6 was categorized as poor, 7-8 as fair and ≥ 9 as good. Hand washing and food preparation were assessed using observational checklists before, during training and after a 6-week follow up. Demonstration was repeated using same checklist with 6-points for hand washing and 5-points for food preparation. Data were analyzed using descriptive statistics and student t-test at 5% level of significance.

Ages of EG (29.7 ± 3.5 years) and CG (30.0 ± 5.2 years) were not significantly different. Majority of the participants were secondary school certificate holders (EG 60%, CG 56.7%). Pre-intervention scores for knowledge (EG 13.1 ± 2.6 vs CG 12.1 ± 2.7), attitude

(EG:5.5 ± 1.0 vs CG: 5.0 ± 1.4) and practice (EG:10.2 ± 2.4 vs CG 9.3 ± 1.3) were not significantly different. At post-test, the EG had higher scores than CG for knowledge (19.7 ± 2.4 vs 12.1 ± 2.7), attitude (6.7 ± 1.7 vs 5.0 ± 1.4) and practice (11.8 ± 2.2 vs 9.3 ± 1.3). Practice score were significantly different for hand washing at pre training (3.2 ± 0.2 points) compared to hand washing at post training (4.5 ± 0.2 points). Similarly, food preparation at pre training compared to post training was significant (2.8 ± 0.1 points) vs (4.4 ± 0.2 points). At follow up, hand washing and food preparation practices were not significantly different.

Training intervention significantly improved the mothers' knowledge, attitude and practices relating to complementary feeding. Periodic training for mothers on nutritional care of their infants is recommended.

Keywords: Complementary feeding, Nursing mothers, Nutrition knowledge, Hand washing

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CERTIFICATION

I certify that this work was carried out by LAWAL, Oluyomi Folasade in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria under my supervision.

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LIST OF ACRONYMS

ASF	Animal Source Food
ACC/SCN	United Nations Administuative Committee on Coordination/ Sub Committee on Nutrition
CF	Complementary feeding
EBF	Exclusive breastfeeding
FME	Federal ministry of education
SDG	Sustainable Development Goal
NDHS	Nigeria Demographic Health Survey
PEM	Protein Energy Malnutrition
UNICEF	United Nation Children Emergency Fund
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Nutrition in the early years of life is a major determinant of growth and development, and it also influences adult health (Black 2008). Feeding practices during infancy are important determinants of future physical and mental well-being because of the rapid growth spurt and development of organs and tissues during the first year of life (Waterlow, 2006). They vary with socio-economic stratification and are regulated by a variety of factors such as education, customs, beliefs and taboos (Nagra and Gilani, 2007)

The transition from exclusive breastfeeding to family foods is referred to as complementary feeding, typically covers the period from 6 to 18-24 months of age, and is a very vulnerable period. When breast milk is no longer enough to meet the nutritional needs of the infant, complementary foods should be added to the diet of the child. It is the time when malnutrition starts in many infants, contributing significantly to the high prevalence of malnutrition in children under-five years of age world-wide (WHO 2005).

According to WHO (2005), complementary feeding should be timely, meaning that all infants should start receiving foods in addition to breast milk from 6 months onwards. It should be adequate, meaning that the complementary foods should be given in amounts, frequency, and consistency using a variety of foods to cover the nutritional needs of the growing child while maintaining breastfeeding. Foods should be prepared and given in a safe manner, meaning that measures are taken to minimize the risk of contamination with pathogens. They should be given in a way that is appropriate, meaning that foods are of appropriate texture for the age of the child and applying responsive feeding following the principles of psycho-social care. The adequacy of complementary feeding (adequacy in short for timely, adequate, safe and appropriate) not only depends on the availability of a variety of foods in the household, but also on the feeding practices of caregivers. Feeding young infants requires active care and stimulation, where the caregiver is responsive to the child clues for

hunger and also encourages the child to eat. This is also referred to as active or responsive feeding.

WHO (2005) recommended that infants start receiving complementary foods at 6 months of age in addition to breast milk, initially 2-3 times a day between 6-8 months, increasing to 3-4 times daily between 9-11 months and 12-24 months with additional nutritious snacks offered 1-2 times per day, as desired. The advantage of complementary feeding is to meet the nutritional need of the growing child and to maintain optimal health of the child. When complementary feeding is not well practiced, malnutrition sets in, therefore, interventions that are effective at reducing malnutrition during this vulnerable period should be a high priority.

1.2 Statement of problem

Importance of nutrition as a foundation for healthy development is often underestimated. Poor nutrition leads to ill-health and ill-health contributes to further deterioration in nutritional status. These effects are most observed in infants and young children, who bear the brunt of the onset of malnutrition and suffer the highest risk of disability and death associated with it (WHO, 2005).

Childhood under nutrition remains a major health problem in resource-poor settings. Approximately one-third of children less than five years of age in developing countries are stunted (low height-for-age), and large proportions are also deficient in one or more micronutrients. Recent data shows that just over half of 6-9 month olds are breastfed and given complementary foods and only 39 per cent of 20-23 month olds are provided with continued breastfeeding (UNICEF, 2008)

Malnutrition is one of the biggest health problems that the world currently faces and is associated with more than 41% of the deaths that occur annually in children from 6 to 24 months of age in developing countries which approximately 2.3 million (Sandoval-Priego, Reyes-Morals, Perez-Cuevas, Abrego-Blass and Orrico-Torress, 2002). WHO (2001) reported that 54% of all childhood mortality was attributable, directly or indirectly, to

malnutrition. Sub-Saharan Africa has a high prevalence of stunting, low weight-for-age and acute malnutrition (Lutter and Rivera, 2005)

In 2007, according to WHO, 50–70% of the burden of diarrhea diseases, measles, malaria and lower respiratory infections was attributable to malnutrition. Malnutrition is the result of many interrelated factors such as poverty, insufficient household food security, inadequate health services, inadequate water and sanitation, and lack of knowledge about adequate diet(UNICEF,2009)

Inappropriate feeding practices also contribute to the onset of malnutrition in young children From six months onwards, when breast milk alone is no longer sufficient to meet all nutritional requirements, infants enter a particularly vulnerable period of complementary feeding during which they make a gradual transition to eating family foods. The incidence of malnutrition rises sharply during the period from 6 to18 months of age in most countries, and the deficits acquired at this age are difficult to compensate for later in childhood(WHO,2002).

Progress in improving infant and child feeding practices in the developing world has been remarkably slow (Ruel, 2008) due to several factors. It is estimated that among children living in the 42 countries with 90% of global child deaths, a package of effective nutrition interventions could save 25% of childhood deaths each year (Jones, Steketee, Black, Bhutta and Morris 2008).

In a study by Lindsay *et al*(2008),the result showed common problems related to complementary feeding practices such as the use of expensive commercial cereals which is diluted excessively in the process of feeding the child, cultural factors like not feeding the child with fish or egg in order not to steal when the child grows older, taboos and belief, all these have influence on mothers infant feeding practices. Children also suffer from stunting, underweight, wasting and anaemia due to malnutrition (UNICEF,2009)

The National Population Commission (Nigeria) and Nigeria Demographic and Health Survey state that from 2003 to 2008,the percentage of child malnutrition is still high (NPC and ICF

International, 2014). Comparing trend in nutritional status of children in the last three NDHS Report 2003, 2008 and 2013.Stunting decreases. 42% in 2003, 41% in 2008,37% in 2013.Wasting increases 11%,14% and 18% respectively. Underweight on the other hand decreases to 23% in 2008 from 24% reported in 2003 but increase to29% in 2013.Most cost effective intervention to reduce infant mortality in developing countries is promotion of appropriate complementary feeding practices. This can be achieved through increased public awareness and health promotion practices on complementary feeding. (Fay, Leipziger, Wodon and Yepes2007).

1.3 Justification for the study

According to Daelmans and Saadeh (2008) attention need to be refocused on the promotion of household level feeding practices that are beneficial to the survival of children and caregivers in this part of Nigeria in order to be able to meet the commitment of Nigeria to the United Nations Sustainable Development Goals (SDGs) for reduction in childhood mortality by ending hunger, achieving food security and improve nutrition by the year 2030. Therefore, it is vital that a study on infant feeding practice is conducted which will help to identify current good practices to be supported for improving the feeding practices as effective strategies for solving childhood malnutrition. This present study is a contribution to knowledge on current infant feeding practices and nutritional status of children in Nigeria.

However, to address malnutrition and improve complementary feeding, attention must be given to decisions taken by mothers and caregivers about complementary feeding (Bereng, Bilkes and Nxumalo 2007). This research equipped the mothers on how to practice complementary feeding and also the training improved the complementary nutritional knowledge of mothers. The study had improved the knowledge, attitude and practice of mothers through intervention progmmme that was given to them, to bring a better understanding of what complementary feeding is all about. The study also added to the growing literature on complementary feeding practices of mothers in Nigeria.

1.4 Research questions

This study sought to answer the following research questions

1. What is the knowledge of mothers about complementary feeding?

2. What are the attitudes of mothers to complementary feeding?

3. What are the complementary feeding practices of mothers?

4. Could training programme be effective in improving mothers' complementary feeding knowledge, attitude and practice?

1.5 Broad objective

The broad objective of this study was to measure the effect of training on the knowledge, attitude and practice of complementary feeding among mothers attending immunization clinic at the Adeoyo Maternity Teaching Hospital, Ibadan, Oyo State.

1.6 Specific objectives

The specific objectives of the study were to:

1. Assess the level of knowledge of mothers on complementary feeding.

2. Examine the attitude of mothers toward complementary feeding.

3. Identify the complementary feeding practices of mothers.

4. Design an appropriate training programme based on the outcome of objectives 1–3

5. Evaluate the effect of training on the knowledge, attitude and practices of mothers as relating to complementary feeding.

1.7 Hypotheses

The following hypotheses were tested by the study

1. There is no difference between pre-intervention and post-intervention knowledge of mothers on complementary feeding.
2. There is no difference between pre intervention and post intervention attitude toward complementary feeding.
3. There is no difference between pre intervention and post intervention practice of complementary feeding.

1.8 Operational definition of terms

Complementary feeding- Complementary feeding or weaning is the transition of the human infant from breast-feeding or bottle nursing and commencement of nourishment with other food. (Medilexicon, 2012) Complementary feeding has been defined as the provision of nutrient containing foods or liquids other than breast milk that includes both solid foods and infant formula (Foote and Marriott, 2005).

Nursing mothers-A nursing mother is a woman who is feeding her baby with her own breast milk (dictionary.cambridge.org, 2015).

CHAPTER TWO

LITERATURE REVIEW

2.1 Definition of complementary feeding

Complementary feeding or weaning is the transition of the human infant from breast-feeding or bottle nursing and commencement of nourishment with other food. (Medil exicon. 2012) Complementary feeding has been defined as the provision of nutrient containing foods or liquids other than breast milk that includes both solid foods and infant formula (Foote and Marriott, 2005).

Complementary feeding is also defined as the process started when breast milk is no longer sufficient to meet the nutritional requirements of infants, and therefore, other foods and liquids are needed, along with breast milk. The target range for complernentury feeding is genemlly tuken to bc 6 to 24 months of age (When describing age ranges of 6–24 months, it means that the child has completed 6 months but has an age less than 2 years) even though breast feeding may be continued beyond two years.

The transition from exclusive breast feeding to family foods, referred to as complementary feeding, typically covers the period from 6 to 18 24months of age, which is a very vulnerable period. It is the time when malnutrition starts in many infants, contributing significantly to the high prevalence of malnutrition in children under five years of age world wide (WHO 2002). WHO estimates that 2 out of 5 children are stunted in low income countries. From the age of 6months, an infant's need for energy and nutrients starts to exceed what is provided by breastmilk, and complementary feeding becomes necessary to fill the energy and nutrient gap (Dewey and Brown 2008). If complementary foods are not introduced at this age or if they are given in appropriately, an infant's growth may falter (Dewey and Adu-Afarwuah 2008).

In many countries, the period of complementary feeding from 6-23 months is the time of peak incidence of growth faltering, micronutrient deficiencies and infectious illnesses (Dewey 2008) Even after complementary foods have been introduced, breastfeeding remains a critical source of nutrients for the young infant and child. It provides about one half of an

infant's energy need up to the age of one year, and up to one third during the second year of life. Complementary foods need to be nutritionally adequate, safe, and appropriately fed in order to meet the young child's energy and nutrient needs. However, complementary feeding is often fraught with problems, with foods being too diluted, not fed often enough in too small amounts, or replacing breast milk while being of an inferior quality. Both food and feeding practices influence the quality of complementary feeding, and mothers and families need support to practice good complementary feeding (WHO 2006).

Complementary feeding is started at the age of 6 months because enzyme system and gastrointestinal wall have adequately matured to digest a variety of foods by 6 months. Head and neck muscles are strong enough for head control and the coordination of tongue, lip and swallow. Oral reflexes have developed to swallow semi-solid and solid foods, immune system is ready to handle other foods and to protect against pathogens and all ergies, and kidney system will not be overloaded. After 6 months of age, it becomes increasingly difficult for breast fed infants to meet their nutrient needs from human milk alone (WHO2008).

The term "weaning" has been traditionally described as withdrawal from breast feeding i.e. when breast feeding is gradually replaced by fresh or modified animal milk, or by semisolid food (Wright, 2004). It transitional to change from liquid to solid diet, the feeding behavior changes from sucking to chewing and biting and the obligatory introduction with the mother or other caretaker changes to independent feeding (Bhutta, 2004).Complementary feeding as described by WHO(2002) refers to the addition of energy and non-energy containing fluids, non-human milk, and semisolids or solids to children's diet(Canadian Peadiatric society) Natural weaning occurs as the infant begins to accept increasing amounts and types of complementary feedings while still breastfeeding on demand. When natural weaning is practiced, complete weaning usually takes place between two and four years of age. Planned weaning occurs when the mother decides to wean without receiving signals from the infant that he is ready to stop breastfeeding. Some reasons commonly given for planned weaning include the following: not enough milk or concerns about the baby's growth, painful feedings or mastitis, returning to work, a new pregnancy etc. (Imtiaz, 2006)

2.2 Guiding principles for complementary feeding

After 6 months of age, it becomes increasingly difficult for breast feed infants to meet their nutrient needs from human milk alone. Furthermore, most infants are developmentally ready for other foods at about 6 months. In settings where environmental sanitation is very poor, delayed introduction of complementary foods might reduce exposure to food-borne diseases. However, because infants are beginning to actively explore their environment at this age, they will be exposed to microbial contaminants through soil and objects even if they are not given complementary foods. Thus, 6 months is the recommended appropriate age to introduce complementary foods (WHO 2001). During this period of complementary feeding children area thigh risk of under nutrition (Shrimpton 2007). Complementary foods should be started with small amounts of food and increase in quantity as the child gets older, while maintaining frequent breastfeeding. The energy needs from complementary foods for infants with "average" breastmilk intake in developing countries are approximately 200k cal per day at 6–8months of age, 300k cal per day at 9–11months of age, and 550k cal per day at 12–23 months of age. In industrialized countries these estimates differ somewhat (130, 310 and 580k cal/day 6–8,9–11 and 12–23 months, respectively) because of differences in average breastmilk intake and increase in the number of times that the child is fed complementary foods as he/she gets older. The appropriate number of feedings depends on the energy density of the local foods and the usual amounts consumed at each feeding. For the average healthy breast fed infant, meals of complementary foods should be provided 2–3 times per day at 6–8 months of age and 3–4times per day at 9–11 and 12–24 months of age.

The guiding principles for complementary feeding of the breast fed child set standards for developing locally appropriate feeding recommendations. (WHO, 2001). They provide guidance on desired feeding behaviours as well as on the amount, consistency, frequency, energy density and nutrient content of foods.

Guiding principles for complementary feeding of the breastfed child based on WHO is as follows (WHO 2010).

- Practice exclusive breastfeeding from birth to 6 months of age, and introduce complementary foods at 6 months of age (180 days) while continuing to breastfeed.
- Continue frequent, on-demand breastfeeding until 2 years of age or beyond.
- Practice responsive feeding, applying the principles of psycho social care.
- Practice good hygiene and proper food handling.
- Start at 6 months of age with small amounts of food and increase the quantity as the child gets older, while maintaining frequent breastfeeding.
- Gradually increase food consistency and variety as the infant grows older, adapting to the infant's requirements and abilities.
- Increase the number of times that the child is fed complementary foods as the child gets older.
- Feed a variety of nutrient-rich foods to ensure that all nutrient needs are met.
- Use fortified complementary foods or vitamin mineral supplements for the infant, as needed.
- Increase fluid in take during illness, including more frequent breastfeeding, and encourage the child to eat soft, favorite foods. After illness, give food more often than us ual and encourage the child to eat more.

Table 2.1: Practical guidance on the quality, frequency and amount of food to offer children 6-23 months of age who are breastfed on demand.

AGE	ENERGY REQUIRED PER DAY IN ADDITION TO BREAST MILK	TEXTURE	FREQUENCY	AMOUNT OFFERED AN AVERAGE CHILD WILL USUALLY EAT AT EACH MEAL
6–8 months	200 kcal per day	Start with thick porridge, well mashed foods Continue with mashed family foods	2–3 meals per day Depending on the child's appetite, 1–2 snacks may be offered	Start with 2–3 tablespoonfuls per feed, increasing gradually to ½ of a 250 ml cup
9–11 months	300 kcal per day	Finely chopped or mashed foods, and foods that baby can pick up	3–4 meals per day Depending on the child's appetite, 1–2 snacks may be offered	½ of a 250 ml cup/bowl
12–23 months	550 kcal per day	Family foods, chopped or mashed if necessary	3–4 meals per day Depending on the child's appetite, 1–2 snacks may be offered	¾ to full 250 ml cup/bowl

Further information

The amounts of food included in the table are recommended when the energy density of the meals is about 0.8 to 1.0 kcal/g

If the energy density of the meals is about 0.6 kcal/g, the mother should increase the energy density of the meal by adding special foods, or increase the amount of food per meal for example

- for 6 to 8 months, increase by about ½ to ¾ cup
- for 9 to 11 months, give a cup full
- for 12 to 23 months, give a full cup

The table should be adapted based on the energy content of local complementary foods

The number of caregiver should feed the child and the principles of responsive feeding, recognizing the cues of hunger and satiety. These cues should guide the amount of food given at each meal and the need for snacks

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* If baby is not breastfed, give additional 3 cups of milk per day, and 1–2 extra meals per day (10).

Source: WHO guiding principle for complementary feeding. 2010.

2.3 Importance of infant and young child feeding:

Adequate nutrition during infancy and early childhood is essential to ensure the growth, health and development of children to their full potential. Poor nutrition increases the risk of illness, and is responsible, directly or indirectly, for one third of the estimated 9.5 million deaths that occurred in 2006 in children less than 5years of age. (Black2008) Early nutritional deficits are also linked to long term impairment in growth and health. Malnutrition during the first 2years of life causes stunting, leading to the adult being several centimeters shorter than his or her potential height. (Martorell et al 2001)

Although considerable flexibility in the diet of each infant should be permitted to allow for personal idiosyncrasies and family habits, the care giver should be given an outline of the basic daily dietary needs. Importantly, the care giver should also be aware of what to expect in term so feating behavior as the child matures (Dewey and Brown 2008)

There is evidence that adults who were malnourished in early childhood have impaired intellectual performance (Pollit 2005). They may also have reduced capacity for physical work (Gramtham and Hass 2006). If women are malnourished in childhood, their reproductive capacity is affected, their infants may have lower birth weight, and they have more complicated deliveries (Martin 2004). When many children in a population are malnourished it has implications for national development. The overall functional consequences of malnutrition are thus immense. The first two years of life provide a critical window of opportunity for ensuring children's appropriate growth and development through optimal feeding (World Bank 2006). Based on evidence of the effectiveness of interventions, achievement of universal coverage of optimal breastfeeding could prevent 13.0% of deaths occurring in children less than 5years of age globally, while appropriate complementary feeding practices would result in an additional 6.0% reduction in under five mortalities (Jones 2003).

It is essential to have a variety of foods to ensure that nutrient needs are met. Meat, poultry, fish or eggs should be eaten daily, or as often as possible. Vegetarian diets cannot meet nutrient needs at this age unless nutrient supplements or fortified products are used.

Vitamin A rich fruits and vegetables should also be given daily. It is also recommended to have diets with adequate fat content and to avoid giving diets with low nutrient value, such

as tea, coffee and sugary drinks such as soda. It is advised to limit the amount of juice offered so as to avoid displacing more nutrient-rich foods (Shrimpton 2007).

2.4 Global situation of complementary feeding

Adequate nutrition is a basic right, but globally it remains unmet for many under-five-year old children. This has resulted in over 200 million children with malnutrition in developing countries and contributes to more than half of the twelve million deaths of under five-year old children that occur in each year (UNICEF, 2008). UNICEF estimated that 190 million under-five-year old children in developing countries are chronically malnourished and are trapped early in life in patterns of poor health and development (Rutungwe, et al 2009)

Adequate nutrition during infancy and early childhood is critical to the development of children's full human potential. Poor infant and young child feeding practices, coupled with high rates of infectious diseases, are the proximate causes of malnutrition during the first two years of life. The second half of an infant's first year is an especially vulnerable time, when breast milk alone is no longer sufficient to meet his or her nutritional requirements and complementary feeding should start (WHO, 2008). Many children suffer from under nutrition and growth faltering during this period, with consequences that persists throughout their life. Malnutrition and micronutrient deficiencies during weaning period is reported from Pakistan (Akram, 2005, Chimmulary, and Nisel 2002) and many other developing countries (Iqbal Hossian , 2002).

World Health Organization (WHO) has identified poor quality complementary foods with low nutrient density and inappropriate feeding practices as one of the major causes of malnutrition in young children (WHO, 2003). The risk of nutritional deficiencies witnessed during the second half of infancy in many developing countries has been found to be as a result of either early or too late introduction of complementary foods which are equally insufficient in quality and quantity (Pelto, Levitt and Hairu 2003). More than 10 million children die each year, most children die from preventable causes and the majority of children who die are from poor countries (Black *et al*., 2008).

Infants and young children bear the brunt of chronic malnutrition and suffer the greatest consequences, that is, the highest risks of morbidity and mortality (Mills, Schuhay, Volmink,Walker, Ford, Katahira and Montaner 2008). The incidence of malnutrition rises sharply between 6-18 months of age and the deficits acquired are difficult to compensate for later in the survivors (World Bank, 2005). In 2003, WHO/UNICEF published a Global

Strategy for Infant and Young Child Feeding (WHO 2003). This document re-emphasizes that lack of exclusive breastfeeding in the first half of infancy is a major risk factor for infant/childhood morbidity and mortality, which is then compounded by inappropriate complementary feeding. It further indicates that inadequate knowledge about appropriate foods and feeding practices is often a greater determinant of malnutrition than actual lack of food. Emphasis is also given to the provision of sound and culture-specific nutrition counseling to mothers of young children in the widest possible use of indigenous foodstuffs that will help to ensure the optimal safe use of local affordable foods (WHO 2006).

Most intervention studies have not addressed local food-based strategies for the prevention of micronutrient deficiencies, although there have been successful education interventions focused on increased diversity that have shown promising results (Guldan, 2000,Penny *et al.*,2005, ShiZhang, 2009). Yet millions of young children, especially those among the rural poor, do not have access to fortified foods or supplements and are unlikely to do so in the foreseeable future, especially on a sustainable basis. The WHO has published guidelines for complementary feeding which recommend daily intake of animal source foods after six months of age, noting that vegetarian diets alone cannot meet nutrient needs unless nutrient supplements or fortified products are used (WHO, 2003). The importance of including animal source foods (ASF) in complementary feeding has been emphasized by several investigators and also by international organizations including World Health Organization(WHO, 2003).

Over one-third of child deaths are due to under nutrition, mostly from increased severity of disease. Children who are undernourished between conception and age two are at high risk for impaired cognitive development, which adversely affects the country's productivity and growth. The economic costs of under nutrition include direct costs such as the increased burden on the health care system, and indirect costs of lost productivity (UNICEF, 2009).

Growth of all infants from the age of six months onwards depends largely upon the provision of additional building materials supplied through complementary foods in order to help them grow into healthy and active adults. They need to be fed on a diet that provides all the nutrients and energy required for normal growth, vitamins and minerals to alleviate their hidden hunger and keep them strong. It is well-recognized fact that about half of Pakistani children under five mortality is directly or indirectly related to malnutrition. Infant feeding

practices play a crucial role in determining a child's rate of growth and development. A point of great concern among nutritionists and health professionals is that improper feeding practices have not only continued to jeopardize the nutritional status of Pakistani children but also the well being of millions of children all over the world. Introduction of timely, adequate and balanced complementary food is perhaps one of the most important single and direct remedial measures to combat infants' malnutrition. The education of the mothers is also considered to have a great impact on infants' nutritional status. The more a mother is knowledgeable the more she shall be able to help her child to grow nutritionally healthy as a young adult (Smith and Haddad, 2010).

It is generally, assumed that the maternal education has a direct association with improving the nutritional status of infants as it enlightens her about the healthy eating practices. On the basis of this assumption, it is hard to accept that all the educated mothers have children without any nutritional problem, as it has been observed that the educated mothers also have malnourished children but these problems are of different nature i-e over nutrition, which is translated into overweight and obesity. Education initiative and nutrition intervention both have the capacity to foster development, raise consciousness and empower mothers to take diet related conscious decisions for themselves and for their children. Investing on mother education and appropriate nutrition intervention to ensure adequate and appropriate food converging it to balanced dietary intake is surely the most direct way through which a country can promote its health and social welfare reforms, and can lay the foundation for a mentally and physically healthy society. A major study on the determinants of malnutrition in five Indian states found that achieving timely introduction of solid foods at appropriate age might be the most cost effective means of reducing early childhood malnutrition in India today. (BAIF,2007).

2.5 Mothers' knowledge on complementary feeding practices

Feeding practice has a lot of implication for the nutritional status of the child. Mothers' knowledge about nutritious meals for the children influences how the child is fed. In many developing countries infants and young children are most vulnerable to malnutrition because of lack of knowledge on how to feed a child (WHO. 2003).). Many observational studies show that maternal knowledge of optimal child feeding practices like exclusive breastfeeding for six months, continued breastfeeding and the timely transition to adequate complementary food a basis to keep health of a child (WHO, 2010). In Ethiopia, 57% of all under-five deaths

are highly associated with abrupt cessation of breastfeeding and infectious diseases. but it is closely linked to gap of knowledge on how to feed appropriately (Central Statistical Authority Ethiopia and ORC Macro. 2012). Mother's nutritional knowledge is considered to have a great impact on the child feeding practices as she has the capacity to take diet related conscious decisions for the child. A study by Hellen Keller International (2010) in Baitadi District, Nepal showed that 28% and 42.1% of mothers had the perception that children of 6-12 months should not be fed on eggs and flesh meats, this translated to only 2.1% and 4.4% of their children being fed on eggs and flesh meats respectively. Scientific knowledge demonstrates that maternal knowledge on complementary feeding may positively influence practice or may lead to no change in feeding practices. In India, an interventional study where nutritional education was given to mothers to improve awareness about infant feeding in the variety, quantity, quality and consistency of complementary feeding showed that, 86% complementary feeding practices were inadequate in quality, quantity, frequency and consistency (Sethi *et al*, 2003). In a similar study in south India. mothers were counseled about the choice of appropriate complementary foods and feeding frequency. The intervention group had improved feeding practices such as avoiding feeding bottles and improved on dietary diversity and the types of complementary foods (Hague *et al*, 2002).

On the contrary, knowledge may not translate to practice. A study by Subedi *et al*. (2012) on infant and young child feeding practices in Chepang communities in Nepal showed that, only 35% had knowledge about breastfeeding initiation within one hour, 62% had known about exact time for exclusive breastfeeding and 81% mothers had knowledge about appropriate time for introduction of complementary feeding and total time for breastfeeding. Mothers who initiated breastfeeding within one hour were 37% and exclusive breastfeeding up to 6 months were 82% and about 90% of the mothers initiated complementary feeding at the age of 6 months.

2.6 Continued breastfeeding for 2 years and beyond

Continued, frequent, on-demand breastfeeding until 2 years of age and beyond makes an important nutritional contribution for a child (WHO, 2010). Globally, over one-third of infants are exclusively breast-fed up to 6 months, while 90% continue breast-feeding during the second half of infancy (Jone *et al*., 2003). In Kenya, the median duration for any breastfeeding among children is 21 months (KNBS and ICF Macro, 2010). Maternal characteristics are related to breastfeeding up to two years of age and beyond. In India, a

study on determinants of duration of breast feeding amongst women in Manipur, Bangladesh revealed that, living in a rural area and maternal unemployment were found to be associated longer breastfeeding duration (Singh and Singh, 2012). In Kenya, the median duration of any breastfeeding is slightly longer in rural areas (21 months) than in urban areas (19 months), where shortest periods (15 months) of breastfeeding are reported in Nairobi Province (KNBS and ICF Macro, 2010). During complementary feeding, for infants and young children aged 6-23 months, breastfeeding contributes significantly to the overall nutrient intake, fills most of the energy needs and remains an important source of vitamin A and C, as well as essential fatty acids and can provide to their total energy needs (Mukuria, Kothari and Abderrahim, 2006).

2.7 Complementary feeding practices

2.7.1 Frequency of meals

The WHO recommends that breastfed children 6-8 months old be fed 2 times per day and those 9-23 months old be fed 2-3 times per a day while the non-breastfed ones be fed 4 times per day (WHO, 2007). In Kenya the minimum meal frequency is low as per WHO recommendations, the Kenya Demographic and Health Survey of 2008-09 revealed that of all the children 6-23 months, only two thirds were fed the minimum number of times (KNBS and ICF Macro, 2010). A nutrition survey conducted in Marsabit County (Ministry of public of Health and sanitation/UNICEF, 2011), found out that children 6-8 months who were fed at least 2 times or more were 37.3%, and those 9-23 months old who were fed 3 times or more per day were 27.6%. This was low noting that WHO recommends that breast fed children 6-8 months are fed at least 2 times, and those 9-23 months old be fed 3 times per day. In other countries, child feeding frequencies are higher compared to Kenya. A study done in rural Uttar Pradesh (Kumudha et al. 2010) on the frequency of feeding showed higher number of children (63%) aged 6-23 months who were given the minimum recommended number of feeds.

2.7.2 Timely introduction to complementary foods

WHO recommends exclusive breastfeeding for 6 months and introduction of complementary foods at 6 months of age with continued breastfeeding (PAHO/WHO, 2003). The time of introduction and type of complementary food given to an infant are very important for the child's nutritional status. According to current recommendations (WHO, 2007), complementary feeding should be introduced into the child's diet at the age of 6 months,

Early introduction of complementary foods increases infant morbidity and mortality while late introduction of complementary foods is harmful to the health of the baby, because infant growth stops or slows down and the risk of malnutrition and micronutrient deficiency increases (PAHO/WHO, 2003). In most cases, mothers practice early complementary feeding. A study in Vhembe District of Limpopo Province in South Africa on infant feeding practices of mothers and nutritional status of infants revealed that about 43.2% of the infants had been introduced to foods at the age of three months, 18.9% at four months and above and 15.2% at two months and below (Mushaphi *et al.*, 2008). Another study by Kumudha *et al.*, (2010) in the rural Utter Pradesh on increasing appropriate complementary feeding showed that only 13% of children were started on complementary food at the correct age of 6 months. A study in the slums of Dhaka City showed that although complementary feeding is started early by some mothers, majority started at 6 months, as (64%) mothers started complementary feeding at 6-7 months while only 19.2% started at 4-5 months (Akhtar, *et al*.2012). In Kenya, 60% of children aged 4-5 months are given complementary foods (KNBS and ICF Macro, 2010), and by 6 months 84% of the infants are already receiving complementary feeds. This is an indication that majority of the mothers in Kenya practice early complementary feeding in contrast to the WHO (2007) recommendation (introduction of solid, semi-solids and soft foods at 6-8 months).

2.8 Bottle feeding in complementary feeding

Complementary foods should be given using a spoon and cup/ glass (PAHO/WHO, 2003). Baby feeding bottles should be avoided because, in addition to being an important source of contamination for the infant, they interfere with oral dynamics (WHO, 2001). The tendency to use the bottle increases in relation to child's increasing age. A study by Shamin et al (2006), about infant feeding practices including the use of bottle and their determinants, from economically underprivileged mothers in a Peri-urban area of Karachi, Pakistan, showed that only 17% of the infants under the age of 3 months were offered bottle, 69% between 4 to 6 months increased to 76% in infants from 7 months to 1 year. The continued practice of bottle feeding is a concern because of the possible contamination leading to higher morbidity rates in children.

2.9 Hygiene in preparation and storage of complementary foods

Contaminated complementary foods are the major route of transmission of diarrhoea among infants and the higher incidence of diarrhoea coincides with the increase in the intake of these foods. Maternal practices regarding the management, preparation, administration and storage of complementary foods may reduce their contamination. Safe food hygiene practices include the following: those who handle the food during preparation or feeding should wash their hands properly with soap and water, after using the toilet and before meals, the infants hands should be washed likewise; kitchen utensils and cooking surfaces should be kept clean; a meal should be prepared and served immediately after preparation; the infant should be fed from a glass or cup, spoon and plate a infants should not be given leftovers from the previous meal; and, if using a fridge, it should be cleaned regularly and any spoilt foods should be thrown away (WHO, 2006).

2.10 Complementary feeding in Nigeria

In Nigeria, most of the data reported on Protein energy malnutrition (PEM) are from different parts of the country. These data indicate PEM to be one of the major causes of child death in Nigeria. This is because most families do not provide enough protein supplementation to their weaning children while carbohydrate is usually adequate (Hamidu, Salami, Ekanem and Hamman 2007)

According to Lutter (2005) it was reported that to achieve the millennium development Goals (MDG) for child survival and the prevention of malnutrition, adequate nutrition and health during the first several years of life is fundamental. Among the most effective preventive actions for reducing mortality in children less than5 years of age, promotion of exclusive breastfeeding (EBF) and improved Complementary feeding (CF) has been ranked first and third respectively by the World Health Organization(WHO 2003). In Nigeria, the Food Consumption and Nutrition Survey (NDHS, 2013) revealed that four out of every 10 children are stunted or have low height for age. This refers to height\length deficient of linear growth that has failed to reach genetic potential as a result of poor diet and disease. Twenty-nine percent (29%) of Nigerian children are under weight, their weight is too low for their age while 18% of the children are wasted (NPC&ICF International, 2014)

From the above it can be deduced that a silent emergency already exists in Nigeria with its large population (officially 140 million) and extremely poor nutritional indices (stunting 37%, underweight 29%) (NDHS, 2013). A comprehensive study on the risk factors such as infant feeding practices is therefore vital to identify the current practices which can be supported to improve childhood survival.

Adoption of recommended breastfeeding and complementary feeding practices and access to the appropriate quality and quantity of foods are essential components of optimal nutrition for infants and young children (Lutter and Rivera, 2005). Complementary feeding period is the time when malnutrition starts in many infants contributing significantly to the high prevalence of malnutrition in children under-five years of age worldwide (Dueltmans und Saadeh, 2008). Many factors contribute to the vulnerability of children during the complementary feeding period. The complementary foods are often of low nutritional quality and given in insufficient amounts. when given too early or too frequently, they displace breast milk (Villapando. 2008; WHO, 2010).

Data available on the regional prevalence of diarrhea. under nutrition and under-five mortality in Nigeria showed a strong interaction among these three factors, with each of them far more prevalent in northern than southern part of Nigeria (UNICEF, 2005). Prevalence of malnutrition in children in North western Nigeria is high due to early introduction of complementary foods and high levels of microbial contamhation (Anigo, Anieh, Ibrahim and Danbauchi2007, 2008). Poor feeding practices and shortfall in food intake are the most important direct factors responsible for malnutrition and illness nmongst children in Nigeria (Solomon. 2005). The high cost of fortified nutritious proprietary complementary foods is always beyond the reach of most Nigerian families; hence many depend on imidequately processed traditional foods consisting mainly of unsupplemented cereal porridges made from maize, sorghum and millet (Nnam. 2006).

The global strategy for infant and young child feeding states that. infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health, and thereafter, receive nutritionally adequate and safe complementary foods while breastfeeding continues for up to two years or beyond (WHO, 2002). Improved complementary feeding and breastfeeding practices with reduced morbidity are essential to achieving the Sustainable Development Goals (SDGs) for child survival and prevention of

malnutrition (Lutter, 2005). Complementary feeding improvement should be of highest priority for nutrition of infant and young children because of its crucial role in preventing mortality and enhancing children development (Lutter and Dewey, 2008).

Moreover, (Shamim, 2005) mentioned that even if weaning was started at the correct age, several problems were noted. These included infrequent feeding, use of expensive commercial cereals given in diluted form as compared to home-made foods, and improper food preparation. The quality, type and choice of food was not ideal for adequate growth.

The practices of weaning also have significant implications for infant health, notably in relation to normal development, mineral balance and the development of obesity (Department of Health and social security 2006). Particular concern has been expressed over the relationship between initial introduction to solid food and the development of childhood allergies (Chandra, 2010). The timing of introducing solid food also appears to be an important confounding factor for subsequent health. Research has demonstrated that infants introduced to solid food early before 4 months had higher levels of morphometric features characteristic of cardiovascular risk such as increased body fat and body mass index (Wilson, Forsyth, Greene, Irvine, Hauand Howie 2008). In addition, it is observe that early introduction of solids was associated with more wheezy and respiratory illness in childhood. It is beneficial to give complementary feed after 4months.

There are several physical and psychosocial variables which could influence the timing of the introduction of solid food. A study of 98 mothers from Glasgow (Savage, Reilly, Edwards and Durnin 2008) reported two main reasons for giving complementary feed: a perception that the infant was not satisfied with milk feeds and because the baby did not sleep throughout the night. They reported that the main reason for initiating solid feeding was the perception that weaning was 'necessary' to satisfy the infant. Beliefs about the relationship between length of sleeping and intake of solid food may also be strong influences (Walker, 2005). For example, it is perceived that bottle-fed babies sleep through the night at an earlier age than breast-fed babies and this may be an incentive to change the method of feeding (Drewett, Young, Wright 2008) The introduction of solid foods may also be seen as a milestone in the infant's development and parents may welcome this as a sign of maturity in their baby.

It is also recognized that health professionals, family and friends have a leading role to play in supporting and guiding mothers over feeding issues. Savage *et al* (2008) reported that most

of women in their study received formal advice on weaning (mostly from health visitors) and that mothers who had received formal information tended to wean their infants later. It is important to examine parental attitudes and beliefs in order to elucidate reasons for non-compliance with current weaning guidelines (Savage*et al.*, 2008; Tedstone, Dunce, Aviles, Shetty and Daniel 2008).

The change in the infant feeding practices of society has generated much debate throughout the world. The debate has to do with what to give to the child at what time and for what duration. The decision of what infant feeding practice to adopt is influenced by a wide range of factors. Many research studies had been conducted on this subject matter. Despite many years of research and policy initiatives. on infant feeding in sub-Saharan Africa, rates of infant malnutrition and under-nutrition have remained consistently high (ACC/SCN, 2005). During the eighties. several reports were published on gastroenteritis in breast-fed and bottle-fed infants in Kuwait. El-Dosnry *et al.*,(2005) reported that the incidence of gastroenteritis during the first year of life was 63.1% among bottle-fed infants as compared with 36.9% among breast-fed infants. However. Shuhaiber and Al-Rashicd.(2006) found that bottle-feeding was associated with electrolyte disturbances among infants with acute diarrhea.

Weaning should be started at the age of 6 months and should contain energy rich semi-solid food. Malnutrition makes a child susceptive to infection and delays recovery, thus increasing mortality and morbidity. Every time an innocent child suffers the curse of malnutrition, the responsibility goes to the mother, the family and to the community due to their faulty or no knowledge regarding the harmful effect of pre lacteal feeding. benefit of initiation of proper weaning at the correct time. It is to be realized that a million children die worldwide because they are not adequately fed. Several millions who survive suffer from acute or chronic illness related to harmful effects of artificial feeding. These suffering are unnecessary and are the preventable ones by discouraging bottle feeding.

It is well recognized that the period from birth to two years of age is the "critical window" for the promotion of optimal growth. health. and development. Insufficient quantities and inadequate quality of complementary foods, poor child-feeding practices and high rates of infections have a detrimental impact on health and growth in these important years. Even with optimum breastfeeding children will become stunted if they do not receive sufficient quantities of quality complementary foods after six months of age (Victoria. Adair. Fall. Hallal. Martorell. Richter and Sachdev 2008) An estimated six per cent or six hundred

thousand under-five deaths can be prevented of malnutrition by ensuring optimal complementary feeding.

Improved feeding of children under-two years of age is particularly important because they experience rapid growth and development, are vulnerable to illness and there is evidence that feeding practices are poor in most developing countries. Continued breastfeeding beyond six months should be accompanied by consumption of nutritionally adequate, safe and appropriate complementary foods that help meet nutritional requirements when breast milk is no longer sufficient. From 6-12 months, breastfeeding if implemented optimally should continue to provide half or more of the child's nutritional needs, and from 12-24 months, at least one-third of their nutritional needs. In addition to nutrition, breastfeeding continues to provide protection to the child against many illnesses and provides closeness and contact that helps psychological development. Appropriate complementary foods can be readily consumed and digested by the young child from six months onwards and provides nutrients - energy, protein, fat and vitamins and minerals - to help meet the growing child's needs in addition to breast milk (WHO 2005).

Low-quality complementary foods combined with inappropriate feeding practices put under-twos in developing countries at high risk for under nutrition and its associated outcomes. Too often, solid, semi-solid and soft foods are introduced too soon or too late. The frequency and amount of food offered may be less than required for normal child growth, or their consistency or nutrient density may be inappropriate in relation to the child's needs. Too much of a poor complementary food could displace the more nutritive breast milk in the child's diet (WHO, 2003).

The weaning practices in infants aged 4 to 9 months of two hundred Tiv mothers in Makurdi. Nigeria were examined. The study showed that all the mothers breast-fed their infants and most introduced supplementary feed at 3 to 4 months. Most also fed with traditional pap or "akamu' usually prepared by adding boiling water to fermented maize-sorghum paste. However, only a few of these (34%) enriched such paps. Price was a major determinant influencing the choice of feed fed to the infants. Only a few of the mothers (19%) used commercial milk formula, about a quarter fed legumes (24.5%) and fruits and vegetables (30%). (Igbedioh and Ogbeni 2007)

Furthermore, the situation is not different in Ghana, for instance, in a recent poster publication from the US Population Reference Bureau, on studies made in sub-Saharan Africa, proportion of those breastfeeding exclusively up to 6 months in Ghana was below 32%(Population Reference Bureau, 1999). This figure is woefully below the WHO/UNICEF's aim of achieving 75% and above exclusive breastfeeding in sub-Saharan Africa.

However, Ghanaian mothers do not hesitate at all in giving their infants complementary foods. For instance, (Davis.Tagoe-Darko and Mukuria 2003), reported that, water and glucose solutions are widely given to infants, beginning in the first few months of life with the explanation that water should be given to infants immediately after birth because they are thirsty after the exhaustion of the birth process or as a cultural gesture to welcome the child into the world. They went ahead to report that, most mothers in Ghana give "koko", a maize-based fermented porridge, to their infants as early as the first month of life a stage where the child is supposed to be exclusively breastfed.

The Ghana Statistical Service reports that an estimated 17 percent of children in Ghana under age five are moderately stunted while another 9 percent are severely stunted (Ghana Demographic and Health Survey, 1999).The above discussion point to one fact, and that is, the high incidence of infant malnutrition and mortality experienced in developing countries is mainly due to poor infant feeding practices.

2.11 Conceptual framework

The two model chosen for the study are:

- Predisposing, Reinforcing and Enabling Constructs in Educational Diagnosis and Evaluation Model
- Social learning theory

Predisposing, Reinforcing and Enabling Constructs in Educational Diagnosis and Evaluation (PRECEDE Model)

The precede model was developed by Lawrence Green and his colleagues for planning health education programmes (Green. Kreuter. Deeds and Partridges 1992). Precede is a true" model" meant for praginatic efforts to change health behaviour rather than for theory development.

Although social and behavioral science theories are claimed to be able to contribute greatly to the effectiveness of health education programmes, many practitioners in the profession seem to doubt this, and very few ever deliberately use theories in their work.

Theories are essential statements identifying factors that are likely to produce particular results under specified conditions. Theories aim at identifying and helping us understand elements that affect seemingly diverse classes of behaviors and tell us how the elements function (Green and Kreuterl 992).

For the purpose of this study, PRECEDE MODEL proposed by (Green and Kreuter. 1992) was used. This model is a diagnosticmodel (otherwise known as the antecedent model) that can be used in classifying the behavioural patterns of the nursing mothers in Ibadan North concerning their children complementary feeding. There are nine phases in this model, this study focus on educational diagnosis only. Factors influencing health behaviours that are modifiable by educational intervention are broadly divided into three categories.

These factors are: -

- Predisposing factors
- Enabling factors
- Reinforcing factors

These factors can also be referred to as the ANTECEDENT FACTORS, which are responsive for human behaviour.

Predisposing factors include knowledge, attitudes, perceptions, beliefs and values.

Predisposing factors are characterized by motivational forces prior to action. Such, predisposing factors as related to this study include mother's knowledge about when (i.e. the appropriate age to introduce complementary foods), what (i.e. that type of complementary foods to give) and how the complementary foods are to be introduced to her child. Beliefs about the time to introduce complementary food. For example, some mothers believe that complementary foods could be given to babies as from 3 months or even much earlier because of their beliefs that breast milk alone cannot satisfy the babies.

Furthermore, when enabling factors are motivated as an educational process, changes in organization and management of resources are anticipated. These include skill facilities, and finance required. Such will usually be required by the nursing mothers to maintain appropriate complementary foods, occupation of the mother as well as that of the husband; maternal education; availability of certain weaning foods; time available for the preparation of child's food. Apart from the mother's knowledge about when, what and how to introduce the complementary foods. She also needs money and skills to enable her accomplish the knowledge acquired.

Reinforcing factors are social or psychological in nature. They are the attitudes or behaviour of the health professional, family members especially the husband, friends and neighbours. In this study, such factors include extent of information about weaning foods and practice on the media, health centers especially during the Infant Welfare Clinic (IWC) and/or immunization clinics, support of the husband in terms of providing money for the child's foods; support of the health workers as well as the advice in the clinic. There are also the attitudes or behaviour of in-laws and neighbours which may or may not be helpful.

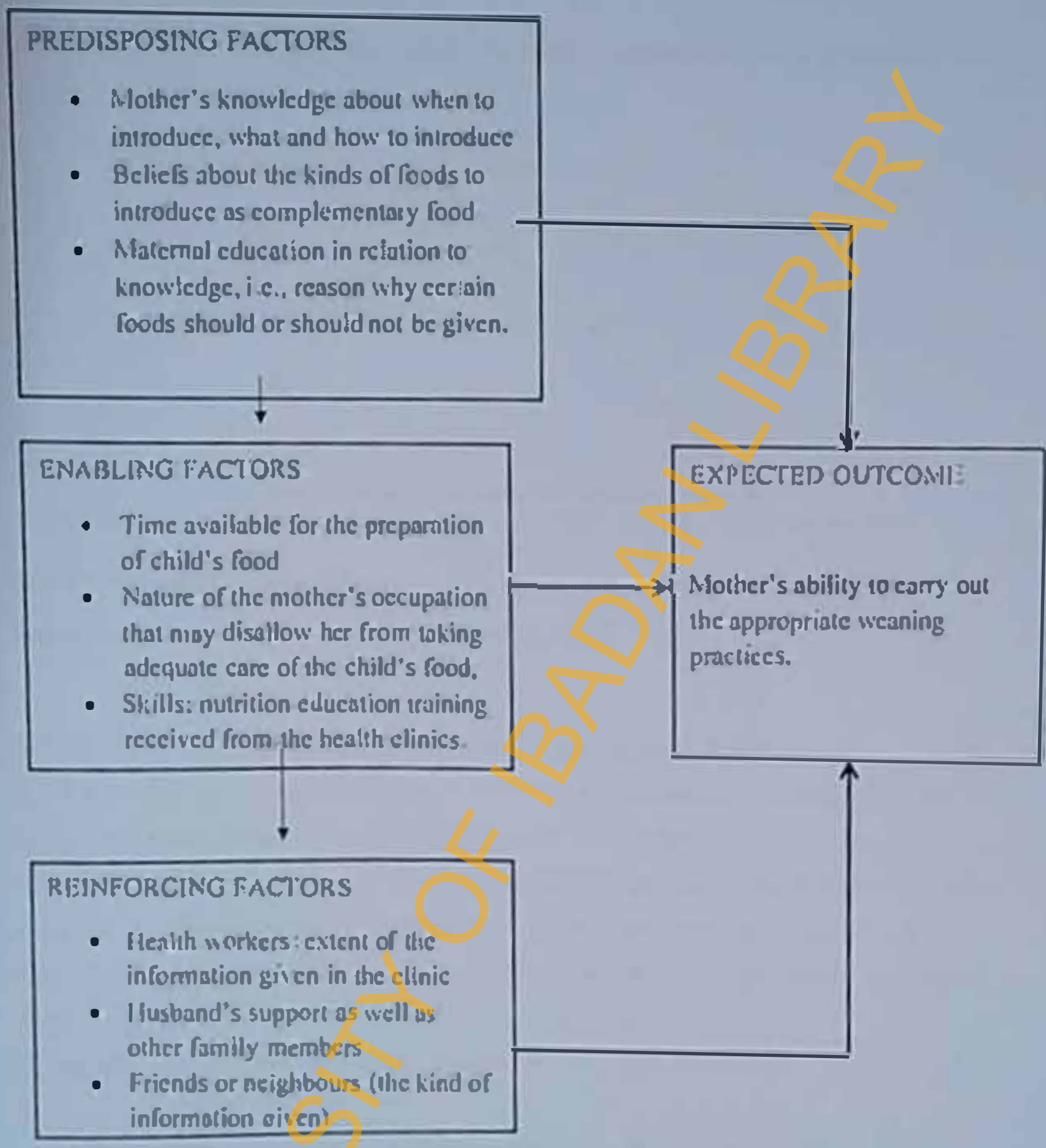

Figure 2.1: The PRECEDE MODEL adapted to the weaning practices of mothers

Source: Adapted from Green and Kreuter (1992)

SOCIAL LEARNING THEORY

Anticipatory outcome of a behaviour and the value that a person places on a given outcome.

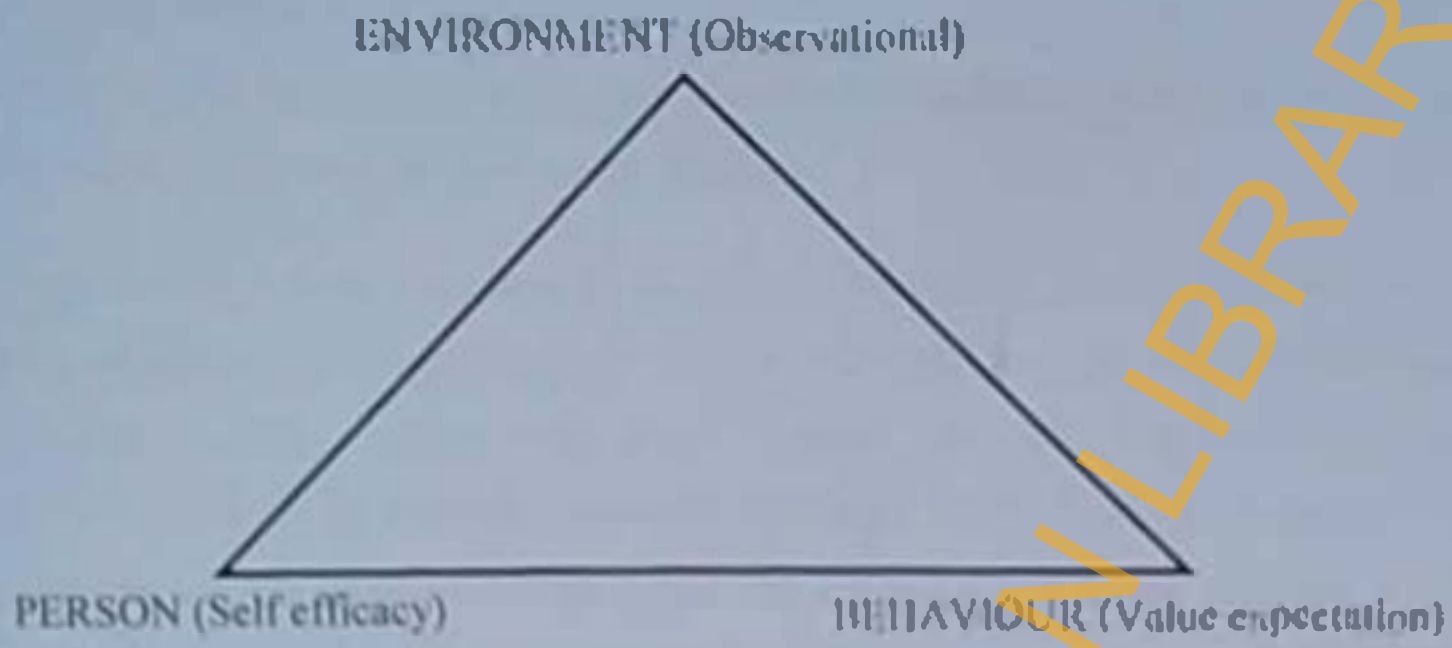

Figure 2.2: Social Learning Theory

Source-Bandura 1977 Social cognitive or learning theory

ENVIRONMENT-formula advertised, urbanization, working mother

Due to attractive packaging and aggressive marketing by commercial companies, mothers can decide using infant formula as a complementary diet for her child.

Also for a working mother, commercial food may be adopted because it can be easily prepared. Observational learning-influence of people that surround a mother e.g Sister, ~~Grandmother, Mother-in~~ law can be an influence on when complementary feeding will commence.

Mother may look at her neighbour as a model to start weaning of her child.

PERSON-Age, educational level, economic status (can afford alternative)

The mother/family economic status determines what the child will be fed with as complementary diet.

Self-efficacy-The mother feels capable of weaning her baby.

BEHAVIOUR-Mother practices the act of weaning

Value Expectancy-weaning safe for the baby and mother will be healthy

CHAPTER THREE

METHODOLOGY

3.1 Study Design

This study was an intervention study with a quasi-experimental design. There were two study groups namely, experimental and control group.

The experimental group consisted of mothers of infant that attend immunization clinic at Adeoyo Maternity Teaching Hospital, Yemetu. The control group were mothers that attend immunization clinic at Ring Road State Hospital. The two hospitals share the same characteristics. Adeoyo Maternity Hospital in Ibadan North LGA was purposely selected. This was as a result of an observation made by the researcher during a previous training in the hospital. During this period, it was observed that most of the mothers in the area do not feed their children adequately.

A training curriculum and action plan was designed by the investigator which was used to train the mothers. The experimental group (n=30) received training intervention while the control group (n=30) did not receive training intervention until after the post-test had been administered (Table 3.1).

Table 3.1: Summary of study design

Groups	Assessments		
	Baseline	Intervention	Post Intervention
Experimental Group (EG)	O_1	X	O_2
Control Group (CG)	O_3	none	O_4

Key: O_1: Pretest for Experimental group

O_2: Post test for Experimental group

O_3: Pretest for Control group

O_4: Post test for Control group

X: Intervention took place

3.2 Description of study area

Description of Adeoyo Maternity Teaching Hospital

The study was carried out in Adeoyo Maternity Teaching Hospital Ibadan, Oyo State. The hospital was established in 1927. It is located in Ibadan North Local Government along Bere/Yemetu road. They have different Departments in the hospital namely, Out-patient department, Children out patient Department, Special care baby unit, Family planning unit, Lying-in ward, Health Education unit, Ante-natal clinic, Gynaecology clinic, Immunization unit, Main theatre, Children ward, Laboratory ,Physiotherapy unit, Pharmacy, Radiotherapy, Mortuary and the Administrative block.

The hospital focuses mainly on pregnant women and children that is maternity and children unit, while other ailments are being treated as well. The out- patient Department takes care of patient within 24-72hours after which referral is done if need be.

After 81years of establishing the hospital, it was renovated in 2008 and now a teaching hospital meeting the need of people of the state.

Description of Ring Road State Hospital

Ring Road State Hospital was established in 1971 to meet the demand of the people, due to the influx of patient to Adeoyo. It is an extension of Adeoyo Maternity Teaching Hospital where other ailments are being treated. It is located in Ibadan South-West local government along Adeoyo Road. They have different Departments in the hospital namely, Out-patient Department, Family planning unit, Lying-in ward, Surgical- Outpatient, Medical- Out Patient, Ante-natal clinic, Gynaecology clinic, Immunization unit, Main theatre, Laboratory, Physiotherapy unit, Pharmacy ,Radiotherapy, Maxillofacial unit, Psychiatry unit, Surgical ward, Medical ward, Laundry Unit, Maintenance Unit, Mortuary and the Administrative block.

Ring road state hospital in Ibadan south west local government shares similar characteristics, problems and needs with those in Adeoyo Maternity Teaching Hospital in Ibadan North LGA.

3.2.1 Study population

The study focuses on mothers with infants from age 6 to 12months

3.2.2 Inclusion Criteria

Mothers with infant from 6 to 12months

3.2.3 Exclusion Criteria

Mothers with babies from birth to 5months were excluded from the study.

3.2.4 Sample size

Sample size formula for comparison of proportions is to ascertain the number of mothers to be included in the study using this formula:

$$N = \frac{(Zx + Z_0)^2 (1-P_1)+P2 (1-P_2)}{(Pi - P2)^2} \qquad \text{(Cochrane,1953)}$$

Where n = sample size

Pi = the estimated proportion at the time of the first survey

P2 = the proportion at some of future data such that the quantity (P1-P2) is the size of magnitude of change it is desired to be able to detect.

Zx = 1.96 (which is Z-score of the probability at the time of the first survey)

Z_B = 0.84 (which is the Z-score of the probability that a change will be detected)

P=21% Osei-Efetie, Oyibo and Okperi 2011

The prevalence 21% P_1

Expected increase in knowledge 30% Ailandi,2006

$P_2 = 21\% + 30\% = 51\%$

$$N = \frac{1.96 + 0.84)^2 \{(1-0.21) + 0.51\} + 0.51 (1-0.51)}{(0.21 - 0.51)^2}$$

$$N = \frac{(2.8)^2 (1.30) + 0.51(0.49)}{(-0.3)^2}$$

$$N = \frac{7.84\,(1.30) + 0.51(0.49)}{(-0.3)^2}$$

$$N = \frac{10.192 + 0.2499}{0.09}$$

$$N = \frac{10.4419}{0.09}$$

$$N = 116.02$$

To compensate for non-response rate. the sample size was increased to 120 per site

3.2.5 Sampling Technique

A multi-stage sampling technique was used to select the mothers for training. Mothers that attend immunization clinic on the average monthly are about one thousand five hundred (1500) (figure received from the matron in charge of immunization clinic Adeoyo, through clinic register)

- Stage1-Stratification was used to select mothers with children from 6months of age, from the total number of mothers that visit the clinic on each day of data collection. Mothers whose babies are from 6months and above were asked to sit separately from others when they come to the immunization clinic.

- Stage 2: Systematic random sampling was used to select every second consenting woman as study participant. For the pre intervention data, information was collected using questionnaire from 240 women, 120 from experimental group and 120 from control group. This was done on every visit day in the clinic until 120 mothers were gathered and then a subset of 30 women out of the 120 women were selected from each group for the training intervention. as this is considered an appropriate number of participants for an effective training as reviewed from other studies (Federal Ministry of Education, 2010)

- Stage 3-The subset of 30 women were selected using the systematic random sampling with a sampling interval of 4, by picking every 4th mother out of 120mothers until 30

mothers were selected for the training. The first participants were selected through simple random sampling. This was done for both the experimental and control groups.

3.2.6 Training needs assessment and pre-test

The validated instrument was used to conduct the baseline survey. During the clinic, the mothers with infant from 6 months in the experimental group were given questionnaire to fill which was done on 6 different occasions from 25th of November to 7th of December 2012 until 120 mothers were completed. At Adeoyo the clinic days were Mondays, Wednesdays and Fridays.

The control group were also visited to administer the pre-test from 29th November to 17th December 2012.

A briefing explaining the purpose of the pre-test, the voluntary nature of the participation and confidentiality of their responses was done before administering the pre-test questionnaire to both the experimental and control groups. The mothers were informed that the results of their responses will be used to design and develop a training curriculum for training them.

One hundred and twenty mothers participated in the pre-test in the experimental group while another 120 were involved among the control group. The completed questionnaires were edited and the responses were coded and entered into a computer. The data were analysed using descriptive and t-test statistics.

The needs assessment results, which is the baseline results are contained in chapter four.

3.2.7 Method of data collection

Data was collected using the mixed method-the questionnaire and observation checklist.

3.2.7.1 Quantitative method (questionnaire)

The questionnaire used for data collection was structured and interviewer administered. The design of the questionnaire was based on the research objectives, review of literature, and guidance of the research supervisor. The questionnaire consists of four (4) sections. The first section consists of questions which documented the socio-demographic characteristics of the subjects. The second section explored knowledge about complementary feeding. The third section examined the attitude of mothers towards complementary feeding. The fourth session explored the complementary feeding practices of mothers.

3.2.7.2 Qualitative method (Observational checklist)

The observation checklist has 11 points altogether, 6 points for hand-washing and 5 points for food demonstration, each of correct steps practiced was scored one, incorrect practice was scored zero.

3.2.8 Procedure for data collection

The investigator established cooperation with the authority of the hospital by taking permission to carry out a research in the immunization clinic. The Chief Matron in charge of the immunization clinic was briefed about the objectives, design and nature of the training intervention. Official permission to carry out the study was sought and obtained.

They were also informed about the inclusion criteria for participating in the study. The procedure adopted in Adeoyo was replicated with Ring Road State hospital. The matrons were briefed about the purpose, objectives and design and their role as the control group. They were informed that there would not be a training intervention until after the intervention in experimental group at Adeoyo has been completed. Baseline survey was carried out among the experimental and control group to assess their knowledge on complementary feeding in order to plan for training.

The women in both the experimental and the control groups were informed that after the survey that they will come for another session to fill the questionnaire and training. Their phone numbers were collected to remind them through call. So the mothers that were selected received phone call as a reminder for training to be done.

A day training was conducted in the infant welfare clinic (immunization clinic). The pretest questionnaires were administered to the mothers before the training and the posttest questionnaires were administered to the mothers immediately after the training.

The experimental group and the control group were given pre-test to assess their knowledge on complementary feeding after which training (intervention) was given to experimental group alone. Health talk (placebo) was given to the control group on importance of immunization in order to occupy them. Post-test was given to the experimental group immediately after the training and control group after giving health talk using same instrument.

The experimental group practiced hand washing and food preparation before demonstration and after demonstration using observation checklist during the training.

Home visiting was done as a follow up activity on consented mothers from experimental group after 6weeks of the training to assess the retention of what was demonstrated to them through return demonstration using the observation checklist.

Evaluation of knowledge, attitude and practice was identified through the test items administered. It was evaluated whether there is improvement in knowledge on complementary feeding.

3.2.9 Validation and reliability of instrument

3.2.9.1 Validity

The face and content validity of the instrument was established through the judgment of experts and lecturers in the Faculty of Public Health. The instrument was given to them to justify the validity of the content in terms of the clarity, appropriateness of the language and the ability to elicit the accurate information for the attainment of the stated objective. The instrument was also modified based on the inputs.

Also, pretesting was done at Jericho Nursing Home, an area of another Local Government Area which has the same demographic characteristics as the study area.

3.2.9.2 Reliability

To ensure the reliability of questionnaire, Cronbach's Alpha model technique was employed. This involves administering the questionnaire once to about 10% equivalent of the study participants at the site chosen for the pre-test and subsequently the coefficient reliability was determined using the SPSS computer software. A result showing correlation coefficient equal or greater than 0.5 is said to be reliable. The instrument questionnaire was pretested for reliability on twelve mothers of infant from 6months of age in Jericho Nursing Home Ibadan. A coefficient of 0.65 was obtained, which indicated that the instrument was reliable. After the pre-test, appropriate modification was made on the instrument based on the result from the pre-test. The question that are open ended were changed to close ended question to get accurate information from the mothers.

3.3.0 Planning Phase

A critical appraisal of the pre-test results was done. The experimental group's areas of knowledge and knowledge gaps on complementary feeding were noted. The results of the

pre-test were used to formulate the curricular objectives. The result of the baseline was available in January 2013.

The appropriate training methods and materials for facilitating the implementation of the curriculum (i.e. training) were selected. These methods included teaching. (lecture) demonstration and return demonstration. The mothers cannot have a training more than a day. because of their work most are traders and some are private or public workers this was taken into consideration. The curriculum was implemented over a day.

The training was held on the 13th March 2013. which lasted from 9am through 2pm (clinic period).The training could not be held earlier than March 2013 because this was when approval was given at the clinic for the training. The immunization clinic was used as the venue for the training programme because of its accessibility and familiarity.

The topics for the various sessions were written and the training materials/ handout were developed from existing literatures. The training materials were made ready for the training programme. The training was done in March due to the following reasons, need to analyses the data to know if there is need for training. there was Christmas break after the data was collected, and also permission need to be taken for the training to be done.

In addition, communication with the trainees and hospital authorities on the venue, date, time and duration of the training were made. Four co-facilitators were recruited and trained with the curriculum earlier developed. They were Master of public health (MPH) students in third year of their programme.

3.4.0 Implementation Phase

The training programme took place on the 13th March 2013 at the Immunization clinic at Adeoyo Maternity Teaching Hospital Ibadan. The participants on arrival were registered and given a tag and the name each person wanted to be called for the training was written on it. they were given training materials in form of leaflet.

The training commenced at 9am and was declared opened by the matron in charge of the clinic in person of Mrs. Akinjide. The training programme commenced at 9:15am with the introduction of the trainer (Principal investigator) and Mrs. Ojelade, Mr. Hassan, Miss Ifeoluwa and Miss Agnes the co-facilitators. The participants introduced themselves and were orientated on their rules and responsibilities as trainees. This was followed by the

formulations of ground rules to guide the conduct of training during the process. Evaluation and welfare committees were formed among the trainees.

The mothers were given pretest questionnaire to fill before training begun and this was done between 9:30am and 10am. Presentation of lessons progressed using a variety of teaching methods and facilitated by means of various teaching aids. Methods of teaching employed included lectures, participatory teaching and question and answers, demonstration and return demonstration. Training materials used included, posters, pamphlets, pictures, and leaflets. The materials used were home materials used in preparing food e.g. stoves, pot, bowl, towel, water, cup, spoon, pap and tom brown and liquid soap for washing hands. The trainees were provided with well prepared and simple lecture to enable them understand basic facts on complementary feeding. There was recapitulation to round up the presentation for each lesson delivered. Energizers such as songs were used intermittently to keep the trainees alert while there were rewards in fomis of claps for every contribution made by the trainees

The content elements of the curriculum included the following: introduction to complementary feeding, appropriate age when complementary feeding should start, classes of food and the importance of each in the diet of the child, the appropriate feeding utensil used in the feeding of the child and the advantage of hand washing before feeding an infant. After the teaching, demonstration on hand washing and food demonstration was practiced. Post-test was done after the day's training and return demonstration done by some mothers to assess the practice of hand washing and food demonstration. Thirty mothers were involved in the training and it ended at 2pm and refreshment served

3.4.1 Trainees' follow up actions and activities

The follow up was done after 6weeks of the training. After the training, mothers were informed about the follow up visit and the investigator asked for mothers that want to be followed up through home visiting. Fifteen mothers gave their consent and their home address taken with description for the visit as well as their phone number for easy contact. The mothers were visited with the address given and were asked to demonstrate the two procedure they were taught. Out of the 15 consented mothers, only 10 were followed up through the address given, some of the address could not be trace. Observation checklist was used to assess the practice. The other 15 mothers did not consent for follow up visit.

3.5 Evaluation phase

Outcome evaluation was conducted. Outcome evaluation measured the immediate outcome or beneficial effect of the training programme as measured by the immediate effects on experimental and control participants knowledge, attitude and practice The questionnaire used at the pre-intervention phase was used at the end of the training programme.

3.6 Data Management and Analysis

The copies of the questionnaire was serially numbered for control and recall purposes, and the data collected were checked for completeness and accuracy .The numbering of the questionnaire was to ensure easy identification and recall of any instrument with problems. The data was sorted,edited and coded manually by the investigator with use of coding guide. The data was imputed into the computer while the analysis was carried out using the SPSS software version 20. Frequency counts was run to detect missing cases while the data also undergo cleaning. Descriptive statistics and inferential statistics (chi-square, T-test) were used for the analysis and the data was presented in tables.P value were set at 0.05.

The knowledge section comprises of 22 items which was assigned a score of 1 point for every correct answer and 0 point for every wrong answer, making a total of 22 point scale. Knowledge was graded at 3 levels as follows: knowledge score of > 17 was graded as good, score between 15-16point was graded fair and < 14 was graded poor. Attitude section has 9items with 9 points scale, attitude was graded at 2 levels as follows: >7 as positive and<6 as negative attitude. Practice section with 12 items with 12 points scale, it was graded at 3 level, as follows, practice score of>9 was graded as good, score between 7-8 was graded as fair and<6 was graded as poor. The open ended sections of the questionnaire were however coded accordingly. The observation checklist has 11points each of correct steps practiced was scored one, incorrect practice was scored zero

The completed copies of the questionnaires were stored in a place that would be safe from destruction by water or fire and where unauthorized person would not have access to them. The data generated at the pre and post tests were then subjected to the following analysis using t-test statistics.

- Pre-test comparison of experimental and control group's mean knowledge score

- Pre-test and post-test comparison of the experimental group's means knowledge score

- Pre and post-test comparison of the control groups mean knowledge scores.

- Post-test comparison of the experimental and control group's mean knowledge scores.

3.7 Ethical Consideration

This study followed the ethical principles guiding the use of human participants in research. Ethical approval was obtained from Oyo State Ethics Review Committee (See Appendix IV).Permission and approval to carry out the intervention study was sought from the hospital management board Adeoyo and Ring Road state hospitals and from the Chief Nursing Officers of the clinic after a full disclosure of the nature, purpose, time and benefits of the proposed study. The trainees were informed they could withdraw from the study anytime. Only mothers who consented were involved in the study. They were assured of confidentiality. The control group received educational intervention in form of lectures and leaflet after the post-test had been administered.

Confidentiality of Data:

Absolute confidentiality was fully assured. No identifier such as name of respondents was required and all information provided were kept confidential. Completed questionnaire were kept in secured setting where no other persons can have access to the information got from respondents. All information were used for the purpose of the research.

Non-Maleficence:

This research did not inflict harm on the participants and every participant were treated equally as much as possible

Voluntariness

At any point in time any participant who wishes to withdraw is free to do so.

3.8 Limitation of Study

The training could not hold immediately after the pre-intervention data collection because of Christmas and New Year break. Repeated visits were done to the clinic to remind the matron in charge and also the mothers were called to remind them that the training will be done soon

The mothers were available for the training only on their clinic day because of their work/job. so a day training was conducted for the study. Training was designed strictly on essential details to facilitate completion of the curriculum designed for a day. Some mothers wanted

incentives before they could volunteer to give information as regard their children. but agreed to participate after the investigator explained the purpose of the study to them.

CHAPTER FOUR

RESULTS

This chapter presents the results related to effect of training on complementary feeding among mothers attending immunization clinic at Adeoyo Maternity Teaching Hospital Ibadan Oyo State.

4.1 Socio-Demographic Characteristics of Participants

The survey consisted of 240 nursing mothers, 120 for each hospital involved in the study. The age of the mothers ranged from 18 to 42years across all the respondents with the mean age of 29.3±4.4years while the ages of their children ranged from 6 to12 months. Furthermore, 57.5% were Christians, 49.6% had secondary education while 82.5% were of Yoruba ethnicity. Fifty-five percent of all the respondents were traders while 90.8% were married. About the fathers of the children, 60.4% had tertiary education, 40% were traders and 25% were working in private sector. With regards to the characteristics of the children, 43% of the mothers had two children, while 46% of the babies of the nursing mothers were six months old. (Tables 4.1a-c)

The training consisted of 60 nursing mothers, 30 each for control and experimental groups. The age range for the two groups is from 23 to 35 years. The mean age for the EG was 28.7±3.5 years; while for the CG was 30.0 ±5.1 years and the ages of their children ranged from 6 to12 months. Furthemore, 40.0% of the experimental groups compared with 60.0% of the control group were Christians. Also, 60.0% of the experimental group compared with 56.7% of the control group had secondary school education. Majority of the experimental group 93.3% and 70.0% of control group were Yoruba's. Half (50.0%) of experimental and 40.0% of the control were into business respectively.

Only 6.7% of the control group were house wives. Most of the respondents were married (E = 96.7%; C = 100.0%) respectively. With regards to the characteristics of the children, 16.7% of experimental and 23.3% of control group had one child each. Details of the socio-demographic characteristics of the respondents are presented in Tables 4.1a-c and 4.2a-b respectively.

Table 4.1a: Socio-demographic Characteristics of survey respondents

Variables		Total (n=240)	
		No.	%
Age of respondents	<20years	3	1.3
	21-25years	44	18.3
	26-30years	106	44.2
	31-35years	68	28.3
	36-40years	18	7.5
	41+	1	0.4
Mean Age (Years)		29.3±4.4	
Religion	Christian	138	57.5
	Islam	101	42.1
	None	1	0.4
Level of education	No formal education	9	3.8
	Primary	10	4.2
	Secondary	119	49.6
	Tertiary	102	42.5
Ethnic group	Yoruba	198	82.5
	Hausa	5	2.1
	Igbo	26	10.8
	Others	11	4.6

Table 4.1b: Socio-demographic Characteristics of survey respondents (cont'd)

Variables		Total (n=240)	%
Occupation	Business	132	55.0
	Private sector Worker	57	23.8
	Public/Civil Sector	38	15.8
	House wife	13	5.4
Marital status	Single	12	5.0
	Married	218	90.8
	Divorced	2	0.8
	Widow	8	3.3
Partner's educational Level	No formal education	4	1.7
	Primary	10	4.2
	Secondary	81	33.7
	Tertiary	145	60.4
Partner's occupation	Business	96	40.0
	Private sector worker	60	25.0
	Public servant	65	27.1
	Others	1	0.4
	No Response	18	7.5
Number of Children	1	67	28.4
	2	101	42.8
	3	44	18.6
	4+	24	10.2

Table 4.1c: Socio-demographic Characteristics of survey respondents(cont'd)

Variables		Total (n=240)	%
Age of Present Child (months)	6	110	45.9
	7	54	22.5
	8	36	15.0
	9	23	9.6
	10	9	3.8
	11	5	2.1
	12	3	1.2

Table 4.2a: Socio-demographic Characteristics of intervention respondents

Variables		Experimental (n= 30)		Control (n= 30)		Total (n=60)	
		No.	%	No.	%	No.	%
Age of respondents							
	23-28years	14	46.7	14	46.7	28	46.7
	29-34years	15	50.0	11	36.7	26	43.3
	Above 35years	1	3.3	5	16.7	6	10.0
Mean Age (Years)		28.7±3.5		30.0±5.2			
Religion	Christian	12	40.0	18	60.0	30	50.0
	Islam	18	60.0	12	40.0	30	50.0
Level of education	Secondary	18	60.0	17	56.7	35	58.3
	Tertiary	12	40.0	13	43.3	25	41.7
Ethnic group	Yoruba	28	93.3	21	70.0	49	81.6
	Hausa	0	0.0	1	3.3	1	3.3
	Igbo	2	6.7	8	26.7	10	15.1
Occupation	Business	15	50.0	12	40.0	27	45.0
	Private sector Worker	8	26.7	12	40.0	20	33.3
	Public/Civil Sector	7	23.3	4	13.3	11	18.3
	House wife	0	0	2	6.7	2	3.4
Marital status	Single	1	3.3	0	0	1	1.7
	Married	29	96.7	30	100.0	59	98.3

Table 4.2b: Socio-demographic Characteristics of intervention respondents (cont'd)

Variables		Experimental (n = 30)		Control (n = 30)		Total (n = 60)	
		No	%	No	%	No	%
Partner's educational Level	Secondary	15	50.0	12	40.0	27	45.0
	Tertiary	15	50.0	18	60.0	33	55.0
Partner's occupation	Business	21	70.0	15	50.0	36	60.0
	Private sector worker	5	16.7	8	26.7	13	21.7
	Public servant	4	13.3	6	20.0	10	16.7
	No response	0	0	1	3.3	1	1.6
Number of Children	1	14	46.7	7	23.3	21	35.0
	2	8	26.7	16	53.3	24	40.0
	3	3	10.0	6	20.0	9	15.0
	4+	5	16.7	1	3.3	6	10.0
Age of Present Child (months)	6	15	50.0	6	20.0	21	35.0
	7	5	16.7	8	26.7	13	21.7
	8	3	10.0	6	20.0	9	15.0
	9	5	16.7	6	20.0	11	18.3
	10	0	0	2	6.7	2	3.3
	11	2	6.7	1	3.3	3	5.0
	12	0	0	1	3.3	1	1.7

4.2 Knowledge of surveyed mothers about complementary feeding

The mothers' knowledge concerning complementary feeding was assessed and the items on Table 4.3a-d show the responses of the mothers. Majority of the respondent (72.5%) did not know what complementary feeding was while 22.5% understood the meaning and 5% were uncertain about it. Majority (79.2%) of the respondent agreed that complementary feeding is the process of giving both breast milk and adult food to a child while 15.4% disagreed and 5.4% were uncertain. Also (73.3%) said complementary feeding is the transition of infant from breast milk to adult food while18.3% did not support and8.3% were uncertain. Moreover, a little above half (55.4%) did not agree that child a should start feeding with pap alone while 41.3% agreed and (3.3%) were uncertain. Also 30% disagreed that child should be weaned on pap and milk alone while 67.5% agreed while 2.5% were uncertain about it. Eighty-nine (37.1%) mothers disagree that a child can be fed with infant formula alone while 59.2% agreed and 3.8% were uncertain. Moreover, 20.8% disagreed that infant can be fed on varieties of adult food if the child tolerates it, 74.6% agreed while 4.6% were uncertain. Also in Table 4.3b, 18.3% disagree that lack of protein in the weaning diet may lead to physical and intellectual growth retardation, 78.8% agreed while 2.9% were uncertain. Few (8.8%) of the mothers disagreed that only small quantity of food should be given when introducing complementary feeding while 88.3% agreed and 2.9% were uncertain. 18.8% of the respondent disagreed that infant should not be forced to take more than he or she want while 77.5% agreed and 3.7% were uncertain. Moreover, in Table 4.3b, 20.0% disagreed that Vitamin A like palm oil is essential in the diet of a child while 77.1% agreed and 2.9% were uncertain. Furthermore 9.2% disagreed that animal protein like egg, meat, and fish is essential for child growth while 88.8% and 2.1% were uncertain.

Also, 28.3% disagreed that only one variety of food at a time should be introduced to the child while 68.3% agreed and 3.3% were uncertain. In Table 4.3c, 20% disagreed that adult food should increase in quantity as child ages and 77.1% agreed while 2.9% were uncertain. Also, 15.4% of the respondent disagreed that feed should increase in frequency as the child grows and 81.7% agreed and minority 2.9% were uncertain. Furthermore, 8.8% disagreed that fruit is needed in the diet of a child while 89.2% agreed and2.1% were uncertain. About, 16.3% disagreed that vegetable should be included in the diet of the child while 82.5% agreed and 1.3% were uncertain. Also, 4.2% disagreed that food rich in iron like meat, fish, cray fish is essential in the diet while 93.8% agreed and 2.1% were uncertain. Moreover, in Table 4.3d, 22% of the respondent agreed that a child should start adult food before 6 months, 63.3% said they should start at 6month and13.8% said after 6months. Furthermore, 79.2% said protein food is important for child growth while 20.8% said it is carbohydrate food. Only (6.8%) said a child should eat any meal other than breast milk at 6 month

for 4-5times/day. 61.5% said child should eat food other than breast milk at 9-11months for 3-4times. /day while 58.2% said a child should eat any meal other than breast milk at 12-24months for 2-3 times/day. The first food a young child should be given other than breast milk is solid said by 31.7% respondents, semisolid by 36.3% and liquid by 32%.

Table 4.3 a: Knowledge of Surveyed Mothers about Complementary Feeding N=240

Knowledge Statement	Total Response	%
Complementaty feeding or weaning is the process of giving breast milk to a child		
No*	54	22.5
Yes	174	72.5
Uncertain	12	5.0
Complementary feeding is the process of giving both breast milk and adult food to a child		
No	37	15.4
Yes*	190	79.2
Uncertain	13	5.4
Complementary feeding is the transition of infant from breast milk to adult food		
No	44	18.3
Yes*	176	73.3
Uncertain	20	8.3
Child should start feeding with pap alone		
No*	133	55.4
Yes	99	41.3
Uncertain	8	3.3
Child should be weaned on pap and milk alone		
No*	72	30.0
Yes	162	67.5
Uncertain	6	2.5
Child can be fed with infant formula alone		
No*	89	37.1
Yes	142	59.2
Uncertain	9	3.8
Infant can be fed on varieties of adult food as the child tolerate the food		
No	50	20.8
Yes*	179	74.6
Uncertain	11	4.6

*Correct response

Table 4.3 b: Knowledge of Surveyed Mothers about Complementary Feeding (cont'd)

Knowledge Statement	Total	
	Response	%
Lack of protein in weaning diet leads to physical and intellectual growth retardation		
No	44	18.3
Yes*	189	78.8
Uncertain	7	2.9
Only small quantity of food should be given when introducing complementary feeding		
No	21	8.8
Yes*	212	88.3
Uncertain	7	2.9
Infant should not be forced to take more than he or she want		
No	45	18.8
Yes*	186	77.5
Uncertain	9	3.8
Is vitamin A like palm oil essential in the diet of a child?		
No	48	20.0
Yes*	185	77.1
Uncertain	7	2.9
Animal protein like egg, meat, fish essential for child growth		
No	22	9.2
Yes*	213	88.8
Uncertain	5	2.1
Only one variety of food at a time should be introduced to the		
No*	68	28.3
Yes	164	68.3
Uncertain	8	3.3

*Correct response

Table 4.3 c: Knowledge of Surveyed Mothers about Complementary Feeding(cont'd)

Knowledge Statement	Response	Total %
Adult food should increase in quantity as the child ages		
No	48	20.0
Yes*	185	77.1
Uncertain	7	2.9
Feed should increase in frequency as the child grows		
No	37	15.4
Yes*	196	81.7
Uncertain	7	2.9
Fruit is needed in the diet		
No	21	8.8
Yes*	214	89.2
Uncertain	5	2.1
Vegetable should be included in the diet		
No	39	16.3
Yes*	198	82.5
Uncertain	3	1.3
Food rich in iron like meat, fish, crayfish is essential in the diet		
No	10	4.2
Yes*	225	93.8
Uncertain	5	2.1

*correct response

Table 4.3 d: Knowledge of Surveyed Mothers about Complementary Feeding (Cont'd)

Knowledge Statement	TOTAL	
	F	%
At what age (in month) should a child start adult food		
Before 6 months	55	22.9
*At 6 months	152	63.3
After 6 months	33	13.8
List the type of food that is important for child growth		
*Protein foods	190	79.2
Carbohydrate foods only	50	20.8
Can you mention how many times in a day a child should eat any meal other than breast milk		
When they are 6-8 month(Correct Answer 2-3times)	14	5.8
When they are 9-11 month (Correct Answer 3-4times)	109	45.4
When they are 12-24month (Correct Answer 3-4times)	117	48.8
What are the first food a young child should be given other than breast milk.		
Solids	76	31.7
*Semi solids	87	36.3
Liquids	77	32.0

*Correct response

Thirty-six percent of the respondents had poor knowledge on complementary feeding while 20.0% had fair knowledge and 44.2% had good knowledge.

Table 4.4: Percentage distribution of knowledge scores in the surveyed group

Knowledge Classification	Score range	Total	
		N	%
Poor	≤14.00	86	35.8
Fair	15.00-16.00	48	20.0
Good	≥17.00	106	44.2
Total		240	100.0

* Total obtainable score is 22

Thirty-six percent of the respondents had poor knowledge on complementary feeding while 20.0% had fair knowledge and 44.2% had good knowledge.

Table 4.4: Percentage distribution of knowledge scores in the surveyed group

Knowledge Classification	Score range	Total	
		N	%
Poor	≤14.00	86	35.8
Fair	15.00-16.00	48	20.0
Good	≥17.00	106	44.2
Total		240	100.0

* Total obtainable score is 22

13 Attitude of surveyed mothers about complementary feeding

Majority of the respondent (89.6%) agreed that they enjoy engaging in complementary feeding while 4.6% disagreed and 5.8%were uncertain. More than half (58.3%) agree that having to cook or prepare separate meal is stressful and 33.8% disagree while 7.9% were uncertain. Most of the respondents (62.9%) agreed that complementary feeding is time consuming, 30.4% disagree while 6.7% were uncertain. More than half (55.4%) agree that feeding child with adult diet is messy, 35.8% disagree and only 8.8% were uncertain. Furthermore, 67.5% agree that introducing adult food to child makes the mother to have time for herself, because other significant others can assist with the feeding. 24.2% disagree and 8.3% were uncertain. About half (50.4%) agree that complementary feeding poses additional expenses on the family menu, 41.3% disagree and 8.3% were uncertain. About half (50.4%) agree that complementary feeding poses additional expenses on the family menu, 41.3% disagree and 8.3% were uncertain. Also, 1.7% agrees that giving children egg and fish will make them steal, 72.9% disagree and 10% were uncertain. Moreover, 25.8% agree that giving children vegetable will make them have diarrhoea, 60.8% disagree and 13.3% were uncertain about it. One third (38.3%) agree that complementary feeding is not easy to practice 52.5% disagree while 9.2% were uncertain.(Table 4.5)

Table 4.5: Surveyed mothers' attitude to complementary feeding N=240

Attitudinal Statement	Response Agree N (%)	Disagree N (%)	Uncertain N (%)
I enjoy engaging in complementary feeding	215 (89.6)	11 (4.6)	14(5.8)
Having to cook/prepare separate meat is stressful	140(58.3)	81(33.8)	19(7.9)
Complementary feeding is time consuming	151(62.9)	73(30.4)	16(6.7)
Feeding the child with adult diet is messy	133(55.4)	86(35.8)	21(8.8)
Introducing adult food to child makes mother to have time for herself, because other significant others can assist with the feeding	162(67.5)	58(24.2)	20(8.3)
It poses additional expenses on the family menu	121(50.4)	99(41.3)	20(8.3)
Giving children egg and fish will make them steal	41(17.1)	175(72.9)	24(10.0)
Giving children vegetable will make them have diarrhea	62(25.8)	146(60.8)	32(13.3)
Complementary feeding is not easy to practice	92(38.3)	126(52.5)	22(9.2)

Table 4.6: Percentage distribution of attitude score in the surveyed mothers

Table below reveals that two – third (64.6%) of the respondents had negative attitude to complementary feeding while the remaining (35.4%) had positive attitude.

Attude classification	Score range	Total	
		N	%
Negative	≤6	155	64.6
Positive	>7	85	35.4
Total		240	100.00

* Total obtainable score is 9.

4.1 Practice of Surveyed Mothers about Complementary Feeding

Only (7.1%) said they do not use cup and spoon to feed their child, 90.8% use it and 2.1% were uncertain. Also, 42.1% did not use bottle to feed their child. 55.8% use bottle to feed while (2.1%) were uncertain. About half (44.2%) do not force-feed their child anytime they refuse to eat voluntarily while 53.8% force-feed their child and 2.1% were uncertain. About 7.9% of the respondents do not prepare their child food by themselves and 88.8% do, while 3.3% were uncertain. About (9.6%) do not maintain good hygiene in the preparation of their child diet, 88.3%do, while 2.1%were uncertain. Also, 39.2% do not feed their child at least 3times per day while 58.3% do and 2.5% were uncertain. About one-fifth (20.4%) do not feed their child as often as the child can tolerate, 75.4% feed as the child tolerate while 4.2% were not certain. Half (50%) says their hands are clean so there is no need to wash hand each time before preparing the child diet, 47.5% says there is need to wash hand each time before preparing the child diet and 2.5% were uncertain. Half (51.3%) says they do not wash their child utensil with water alone, 46.3% say they do and 2.5% were uncertain. Also, 18.3% do not prepare separate food for their young child, 77.5% do, while 4.2% were uncertain. Moreover, 18.8% says their child do not eat from their own bowl, 76.7% eat from their own bowl. Finally, 19.2% says they do not feed their child with locally available home-made food, 75.4% feed their child with locally available food and 5.4% were uncertain. (Tables 4a&b)

Table 4.7a: Practice of Surveyed Mothers to Complementary Feeding N=240

Complementary feeding practice	Total	
	Response	%
I use cup and spoon to feed my child		
No	17	7.1
Yes*	218	90.8
Uncertain	5	2.1
I use bottle in the feeding of my child		
No*	101	42.1
Yes	134	55.8
Uncertain	5	2.1
I force feed my child anytime he/she refuses to eat voluntarily		
No*	106	44.2
Yes	129	53.8
Uncertain	5	2.1
I Prepare my child food by myself		
No	19	7.9
Yes*	213	88.8
Uncertain	8	3.3
I ensure I maintain good hygiene in the preparation of my child diet		
No	23	9.6
Yes*	212	88.3
Uncertain	5	2.1
I feed my child at lenst 3 times per day		
No	94	39.2
Yes *	140	58.3
Uncertain	6	2.5
I feed my child as often as the child can tolerate		
No	49	20.4
Yes*	181	75.4
Uncertain	10	4.2
My hands are clean, so I don't need to wash hand each time before preparing my child diet		
No*	120	50.0
Yes	114	47.5
Uncertain	6	2.5

*Correct response

Table 4.7b Practice of Surveyed Mothers to Complementary Feeding(Cont'd)N=240

Complementary feeding practice	Response	
	N	%
I wash my child utensil with water alone		
No*	123	51.3
Yes	111	46.3
Uncertain	6	2.5
I prepare separate food for my young child		
No	44	18.3
Yes*	186	77.5
Uncertain	10	4.2
My child eat from his/her own bowl		
No	45	18.8
Yes*	184	76.7
Uncertain	11	4.6
I feed my child with locally available homemade food		
No	46	19.2
Yes*	181	75.4
Uncertain	13	5.4

*Correct response

Table 4.8 Percentage distribution of practice score in the surveyed groups

Table below shows that 15.0% of the respondents had poor practice of complementary feeding while a little above half (56.3%) had fair practice and about one – third (28.8%) had good practice.

Practice classification	Score range	N	Total %
Poor	< 6	36	15.0
Fair	7 – 8	135	56.3
Good	9>	69	28.8
Total		240	100.0

* Total obtainable score is 12.

Table 4.9 Knowledge of trained mothers on Complementary feeding

The mothers' knowledge improved at the post test compared to the pre-test in the experimental group, the control group on the other hand had no changes in their knowledge.

Table 4.9a: Knowledge of trained mothers on complementary feeding N=30

Knowledge Statement	Experimental Group		Control Group	
	Pre-Test	Post-Test	Pre-Test	Post-Test
	N (%)	N (%)	N (%)	N (%)
Complementary feeding or weaning is the process of giving breast milk to a child				
No*	8 (26.7)	25 (83.3)	9 (30.0)	9 (30.0)
Yes	22 (73.3)	5 (16.7)	21 (70.0)	21 (70.0)
Complementary feeding is the process of giving both breast milk and adult food to a child				
No	13 (43.3)	2 (6.7)	8 (26.7)	8 (26.7)
Yes*	17 (56.7)	28 (93.3)	22 (73.3)	22 (73.3)
Complementary feeding is the transition of infant from breast milk to adult food				
No	15 (50.0)	1 (3.3)	11 (36.7)	11(36.7)
Yes*	15 (50.0)	29 (96.7)	19 (63.3)	19(63.3)
Child should start feeding with pap alone				
No*	6 (20.0)	27 (90.0)	17 (56.7)	17 (56.7)
Yes	24 (80.0)	3 (10.0)	13 (43.3)	13 (43.3)
Child should be weaned on pap and milk alone				
No*	14 (46.7)	24 (80.0)	22 (73.3)	22 (73.3)
Yes	16 (53.3)	6(20.0)	8 (26.7)	8 (26.7)

* Correct Response

Table 4.9b: Knowledge of trained mothers on complementary feeding (Cont'd)

Knowledge Statement	Experimental Group		Control Group	
	Pre-Test	Post-Test	Pre-Test	Post-Test
	N (%)	N (%)	N (%)	N (%)
Child can be fed with infant formula alone				
No*	14 (46.7)	24 (80.0)	23 (76.7)	23 (76.7)
Yes	16 (53.3)	6 (20.0)	7 (23.3)	7 (23.3)
Infant can be fed on varieties of adult food as the child tolerate the food				
No	9 (30.0)	4 (13.3)	9 (30.0)	9 (30.0)
Yes*	21 (700)	26 (86.7)	21 (70.0)	21 (70.0)
Lack of protein in weaning diet leads to physical and intellectual growth retardation				
No	11 (36.7)	4 (13.3)	5 (16.7)	5 (16.7)
Yes*	19 (63.3)	26 (86.7)	25 (83.3)	25 (83.3)
Only small quantity of food should be given when introducing				
No	3 (10 0)	0 (0 0)	7 (23 3)	7 (23 3)
Yes*	27 (90 0)	30 (100 0)	23 (76 7)	23 (76.7)

* Correct Response

Table 4.9c: Knowledge of trained mothers on complementary feeding (Cont'd)

Knowledge Statement	Experimental Group		Control Group	
	Pre-Test	Post-Test	Pre-Test	Post-Test
	N (%)	N (%)	N (%)	N (%)
Infant should not be forced to take more than he or she want				
No	15 (50.0)	2 (6.7)	11 (36.7)	11 (36.7)
Yes*	15 (50.0)	28 (93.3)	19 (63.3)	19 (63.3)
Vitamin A like palm oil essential in the diet of a child				
No	8 (26.7)	1 (3.3)	7 (23.3)	7 (23.3)
Yes*	22 (73.3)	29 (96.7)	23 (76.7)	23 (76.7)
Animal protein like egg, meat, fish essential for child growth				
No	4 (13.3)	0 (0.0)	3 (10.0)	3 (10.0)
Yes*	26 (86.7)	30 (100.0)	27 (90.0)	27 (90.0)
Only one variety of food at a time should be introduced to the child				
No*	13 (43.3)	25 (83.3)	17 (56.7)	17 (56.7)
Yes	17 (56.7)	5 (16.7)	13 (43.3)	13 (43.3)
Adult food should increase in quantity as the child ages				
No	15 (50.0)	12 (40.0)	12 (40.0)	12 (40.0)
Yes*	15 (50.0)	18 (60.0)	18 (60.0)	18 (60.0)

*Correct Response

Table 4.9d: Knowledge of trained mothers on complementary feeding (Cont'd)

Knowledge Statement	Experimental Group		Control Group	
	Pre-Test	Post-Test	Pre-Test	Post-Test
	N (%)	N (%)	N (%)	N (%)
Food should increase in frequency as the child grows				
No	13 (43.3)	1 (3.3)	12 (40.0)	12 (40.0)
Yes*	17 (56.7)	29 (96.7)	18 (60.0)	18 (60.0)
Fruit to be added in the diet				
No	2 (6.6)	0 (0.0)	13 (43.3)	13 (43.3)
Yes*	28 (93.4)	30 (100.0)	17 (56.7)	17 (56.7)
Vegetable should be included in the diet				
No	5 (16.7)	0 (0.0)	13 (43.3)	13 (43.3)
Yes	25 (83.3)	30 (100.0)	17 (56.7)	17 (56.7)
Food rich in iron like meat, fish, crayfish is essential in the diet				
No	5 (16.7)	0 (0.0)	2 (6.6)	2 (6.7)
Yes*	25 (83.3)	30 (100.0)	28 (93.3)	28 (93.3)

*Correct Response

Table 4.9c: Knowledge of trained mothers on complementary feeding (Cont'd)

Knowledge Statement	Experimental Group		Control Group	
	Pre-Test	Post-Test	Pre-Test	Post-Test
	N (%)	N (%)	N (%)	N (%)
Age (in month) should a child start adult food				
Before 6 months	10 (33.3)	0.00 (0)	12 (40.0)	12 (40.0)
At 6 months*	12 (40.0)	25 (83.3)	10 (33.3)	10 (33.3)
After 6 months	8 (26.7)	5 (16.7)	8 (26.7)	8 (26.7)
Type of food that is important for child growth				
Protein food*	15 (50.0)	25 (83.3)	10 (33.3)	10 (33.3)
Carbohydrate food only	15 (50.0)	5 (16.7)	20 (66.7	20 (66.7)

*Correct Response

Table 4.9f: Knowledge of trained mothers on complementary feeding (Cont'd)

Knowledge Statement	Experimental Group		Control Group	
	Pre-Test	Post-Test	Pre-Test	Post-Test
	N (%)	N (%)	N (%)	N (%)
How many times in a day a child should eat any meal other than breast milk				
When they are 6-8 month(Correct Answer 4-5times)	10 (33.3)	15 (50.0)	5 (16.7)	5 (16.7)
When they are 9-11 month (Correct Answer 3-4times)	10 (33.3)	10 (33.3)	15 (50.0)	15 (50.0)
When they are 12-24month (Correct Answer 2-3times)	10 (33.3)	5 (16.7)	10 (33.3)	10 (33.3)
The first food a young child should be given other than breast milk				
Solids	10 (33.3)	4 (13.3)	12 (40.0)	12 (40.0)
*Semi Solids	12 (40.0)	20 (66.7)	12 (40.0)	12 (40.0)
Liquid	8 (26.7)	6 (20.0)	6 (20.0)	6 (20.0)

*Correct Response

Table 4.10: Attitude of trained mothers on complementary feeding: Experimental Group

N =30

Statement	Agree		Disagree		Uncertain	
	Pre	Post	Pre	Post	Pre	Post
I enjoy engaging in complementary feeding	25	27	5	3	-	-
	83.3	90.0	16.7	10.0	-	-
Having to cook/prepare separate meal is stressful	9	12	20	16	1	2
	30.0	40.0	66.7	53.3	3.3	6.7
Complementary feeding is time consuming	7	22	23	6	1	1
	23.3	76.7	73.3	20.0	3.3	3.3
Feeding the child with adult diet is messy	9	22	18	6	3	2
	30.0	73.3	60.0	20.0	10.0	6.7
Introducing adult food to child makes mother to have time for herself.	21	22	6	7	3	1
	70.0	73.3	20.0	23.3	10.0	3.3
because other significant others can It poses additional expenses on the family menu	18	20	12	9	-	1
	60.0	66.7	40.0	30.0	0	3.3
Giving children egg nod fish will make them steal	3	5	24	25	3	0
	10.0	16.7	80.0	83.3	10.0	0
Giving children vegetable will make them have diarrhea	7	4	23	24	0	2
	23.3	13.3	76.7	80.0	0	6.7
Complementary feeding is not easy to practice	10	6	17	22	3	2
	33.3	20.0	56.7	73.3	10.0	6.7

Table 4.11: Attitude of trained mothers on complementary feeding: Control Group

N=30

Statement	Agree		Disagree		Uncertain	
	Pre	Post	Pre	Post	Pre	Post
I enjoy engaging in complementary feeding	25	25	4	4	1	1
	83.3	83.3	13.3	13.3	3.3	3.3
Having to cook/prepare separate meal is stressful	18	18	11	11	1	1
	60.0	60.0	36.7	36.7	3.3	3.3
Complementary feeding is time consuming	20	20	10	10	-	-
	66.7	66.7	33.3	33.3	-	-
Feeding the child with adult diet is messy	16	16	12	10	2	4
	53.3	53.3	40.0	33.3	6.7	13.4
Introducing adult food to child makes mother to have time for herself, because other significant others can assist with the feeding	26	24	4	2	2	2
	86.7	800	13.9	6.7	6.7	6.7
It poses additional expenses on the family menu	19	19	10	11	1	0
	63.3	63.3	33.3	36.7	3.3	0
Giving children egg and fish will make them steal	15	15	14	8 8	1	7
	50.0	50.0	46.7	13.6	3.3	11.9
Giving children vegetable will make them have diarrhea	14	14	11	11	5	5
	46.7	46.7	36.7	36.7	16.7	16.7
Complementary feeding is not easy to practice	25	25	5	5	0	0
	83.3	83.3	16.7	16.7	0	0

Table 4.12a: Practice of trained mothers on complementary feeding Cont'd N=30

	Experimental Group		Control Group	
STATEMENT	Pre-Test	Post-Test	Pre-Test	Post-Test
	N (%)	N (%)	N (%)	N (%)
Feed child as often as the child can tolerate				
No	9 (30.0)	2(6.9)	6 (20.0)	6 (20.0)
Yes*	21 (70.0)	28 (93.1)	24 (80.0)	24 (80.0)
Hands are clean, so no need to wash hand each time before preparing child diet				
No*	23 (76.7)	29 (90.0)	13 (43.3)	13 (43.7)
Yes	7 (23.3)	3 (10.0)	17 (56.7)	17 (56.7)
Wash child's utensil with water alone				
No*	21 (70.0)	26 (86.7)	8 (26.7)	8 (26.7)
Yes	9 (30.0)	4 (13.3)	22 (73.3)	22 (73.3)
Prepare separate food for young child				
No	4 (13.3)	4 (13.3)	5(16.7)	5 (16.7)
Yes*	26 (86.7)	26 (86.7)	25 (83.3)	25 (83.3)
Child eats from his/her own bowl				
No	4 (13.3)	2 (6.9)	6 (20.0)	6 (20.0)
Yes*	26 (86.7)	28 (93.1)	24 (80.0)	24 (80.0)
Feed child with locally available homemade food				
No	14 (46.7)	2 (6.9)	4 (13.3)	4 (13.3)
Yes*	16 (53.3)	28 (93.1)	26 (86.7)	26 (86.7)

*Correct Response

Table 4.12b: Practice of trained mothers on complementary feeding Cont'd N=30

STATEMENT	Experimental Group		Control Group	
	Pre-Test N (%)	Post-Test N (%)	Pre-Test N (%)	Post-Test N (%)
Feed child as often as the child can tolerate				
No	9 (30.0)	2(6.9)	6 (20.0)	6 (20.0)
Yes*	21 (70.0)	28 (93.1)	24 (80.0)	24 (80.0)
Hands are clean, so no need to wash hand each time before preparing child diet				
No*	23 (76.7)	29 (90.0)	13 (43.3)	13 (43.7)
Yes	7 (23.3)	3 (10.0)	17 (56.7)	17 (56.7)
Wash child's utensil with water alone				
No*	21 (70.0)	26 (86.7)	8 (26.7)	8 (26.7)
Yes	9 (30.0)	4 (13.3)	22 (73.3)	22 (73.3)
Prepare separate food for young child				
No	4 (13.3)	4 (13.3)	5(16.7)	5 (16.7)
Yes*	26 (86.7)	26 (86.7)	25 (83.3)	25 (83.3)
Child eats from his/her own bowl				
No	4 (13.3)	2 (6.9)	6 (20.0)	6 (20.0)
Yes*	26 (86.7)	28 (93.1)	24 (80.0)	24 (80.0)
Feed child with locally available homemade food				
No	14 (46.7)	2 (6.9)	4 (13.3)	4 (13.3)
Yes*	16 (53.3)	28 (93.1)	26 (86.7)	26 (86.7)

*Correct Response

4.5 Results of demonstration

The result from the post-intervention questionnaire revealed that the experimental group improved in the answers to practice questions (Table 4.12). The result from the Experimental Group was further strengthened by their return demonstration which was assessed with the checklist (Table 4.13 and 4.14). However, there was no difference in the pre and post intervention results of the control group (Table 4.12).

Table 4.13: Hand washing demonstration before and after training

Mothers	Score		
	Before training	After training	6 weeks follow-up
1	3	4	4
2	3	4	4
3	3	5	5
4	3	4	4
5	3	4	4
6	4	5	5
7	3	5	4
8	4	5	4
9	3	4	4
10	3	5	5

Total obtainable score - 6 points

4.5 Results of demonstration

The result from the post-intervention questionnaire revealed that the experimental group improved in the answers to practice questions (Table 4.12). The result from the Experimental Group was further strengthened by their return demonstration which was assessed with the checklist (Table 4.13 and 4.14). However, there was no difference in the pre and post intervention results of the control group (Table 4.12).

Table 4.13: Hand washing demonstration before and after training

Mothers	Score		
	Before training	After training	6 weeks follow-up
1	3	4	4
2	3	4	4
3	3	5	5
4	3	4	4
5	3	4	4
6	4	5	5
7	3	5	4
8	4	5	4
9	3	4	4
10	3	5	5

Total obtainable score - 6 points

Table 4.14: Food preparation demonstration before and after training

Mothers	Score		
	Before training	After training	6 weeks follow-up
1	3	4	4
2	3	4	4
3	3	4	4
4	2	4	4
5	3	5	5
6	2	4	4
7	3	5	5
8	3	4	4
9	3	5	4
10	3	5	4

Total obtainable score - 5 points

4.6 Test of Hypotheses

Hypothesis 1: There is no difference between pre-intervention and post-intervention knowledge of mothers on complementary feeding.

As revealed in Table 4.15, there is no significant difference between the pre and post intervention knowledge scores of the experimental and control groups at baseline. However, at post-intervention, the knowledge score of the experimental group was significantly improved for the experimental group, hence the null hypothesis one is rejected.

Table 4. 15: Knowledge of mothers on complementary feeding

Study group	Frequency	Mean ±SD		t-test	p-value
		Pre-Intervention	Post-Intervention		
Experimental	30	13.1 ±2.6	19.7±2.4	8.80	0.00*
Control	30	12.1 ±2.7	12.1 ±2.7	0.00	1.00
t-test		-1.37	-11.46		
p-value		0.18	0.00*		

*Significant

Hypothesis 2: There is no difference between pre intervention and post intervention attitude towards complementary feeding.

The result of this study (Table 4.16) revealed that training had positive effect on the attitude of mothers towards complementary feeding. Hence, the null hypothesis is equally rejected as there is improvement in the mean attitude score of the experimental group compared to the control group at post-intervention.

Table 4.16: Attitude of mothers towards complementary feeding

Study group	Frequency	Mean ±SD		t-test	p-value
		Pre-Intervention	Post-Intervention		
Experimental	30	5.5 ±1.0	6.7±1.7	3.33	0.00*
Control	30	5.0 ± 1.4	5.0 ±1.4	0.00	1.00
t-test		-1.53	-1.26		
p-value		0.13	0.00*		

*Significant

Hypothesis 3: There is no difference between pre intervention and post intervention practice of complementary feeding

Mothers in the experimental group scored significantly higher in practice questions compared to the mothers in the control group at post intervention: though the 2 groups were comparable at pre-intervention as there was no difference in their mean scores on practice questions at baseline (Table 4.17).

The hand washing and food preparation practice of trained mothers which was further assessed by demonstration and return demonstration score at pre-intervention, immediately after training and 6 weeks follow-up further revealed that practice of hand washing and food preparation was improved both immediately after training and at 6 weeks follow-up (Tables 4.18, 4.19 and 4.20).

Table 4. 17: Practice of mothers on complementary feeding

Study group	Frequency	Mean ±SD		t-test	p-value
		Pre-Intervention	Post-intervention		
Experimental	30	10.2 ±2.4	11.8±2.2	2.85	0.01*
Control	30	9.3 ± 1.3	9.3 ±1.3	0.00	1.00
t-test		-1.90	-7.52		
p-value		0.06	0.00*		

*Significant

Table 4.18: T-test before and immediately after training

	N	Before	After	T-value	P-value
		Mean ± S.D			
Hand washing	10	3.2 ±0.42	4.5 ± 0.53	-8.51	0.000*
Food preparation	10	2.8 ±0.52	4.4 ± 0.42	-9.80	0.000*

Significant P≤0.05

The table shows that there is a significant difference between the respondents' practice of hand washing before and after the trainings on steps to be followed in hand washing and food preparation.

Dependent/paired sample t-test was used.

Table 4.19: T-test before and six weeks after training

	N	Before	Post 6 wks	T-value	P-value
		Mean ± S.D			
Hand washing	10	3.20 ± 0.42	4.30 ± 0.48	-5.43	0.000*
Food preparation	10	2.8 ± 0.52	4.2 ± 0.42	-7.43	0.000*

Significant P≤0.05

The table shows that there is a significant difference between the respondents' practice before and six weeks after the trainings on steps to be followed in hand washing and food preparation.

Table 4.20: T-test immediately after and six weeks after training

	N	After	Post 6 wks	T-value	P-value
	10	Mean ± S.D			
Hand washing		4.50 ± 0.53	4.30 0.48	± 0.89	0.39
Food preparation	10	4.40 ± 0.52	4.20 0.42	± 0.95	0.36

Significant P≤0.05

The table shows that there is no significant difference between the respondents' practice immediately after and six weeks after the trainings on steps to be followed in hand washing and food preparation.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Socio-demographic characteristics

The study found that the mean age of the mothers interviewed in both experimental and control groups were 29 years and 28 years respectively while the ages of their children range from 6 to 12 months. There is no significant difference between these ages. Majority of the mothers in both experimental group and control group believed that appropriate age for any child to start adult food was at 6 months minimum which was in a consonance with WHO recommendation (WHO, 2005).

Education is a major contributor to the type of feeding employed by any mother. Almost half of the mothers in the experimental group had tertiary education while more than half in the control group had secondary education; majority of the fathers had tertiary education. This is expected because of the location where the study was carried out. Ibadan being a south western city in Nigeria with high proportion of literate and educated individuals (Smith and Haddad,2000). This is laudable because fathers with higher education could help in the initiation and adoption of oduh feeding by the mothers. Also the findings from the study showed predominantly that respondents in both experimental and control group were married which tends to influence the choice of their feeding option too.

5.2 Knowledge of mothers about complementary feeding

Knowledge of mothers on complementary feeding was inadequate in both the experimental and control groups at baseline. This was improved for the experimental group at post-intervention. Complementary feeding was described among the experimental group and control groups as 'process of giving breast milk to a child' and 'wrongly agreed that a child can be fed with infant formula alone'. However, adequate knowledge on complementary feeding is essential in achieving the sustainable development Goals (SDG) for child survival and the prevention of malnutrition, adequate nutrition and health during the first years of life (Lutter, 2003). Improving on the right knowledge of complementary feeding of the mothers will help in reducing the burden of malnutrition among under five children as sited by Dacimans and Saadeh (2003); and also to reduce their vulnerability to infections(Villapando, 2008; WHO, 2002).According to this study, the correct knowledge of

initiation of complementary feeding at 6 month was reported by 63.3% of mothers but was practiced by 58.3%.However the results of another study conducted in Lahore reported that in 38% of infant complementary feeding was initiated at the recommended age of 6months.The results of this study are comparable to other similar study conducted in Lahore, Pakistan thus indicating that even their knowledge is better than practices. (Chaudhry, Humayun 2007) Nutrition training of health workers can help to reduce child under nutrition. A systematic review often randomized control trials and cluster randomized control trial confirmed that overall health worker's nutrition training improved daily energy intake, feeding frequency and dietary diversity in the intervention group of children age six month to 2years of age as compared to the control group. This may improve child-feeding practices and thus reduce the risk of under nutrition among children of counseled caregivers.(Bruno, Krishna, Lindo 2013) Homemade food is given by 75.4% mothers and only 19.2% were using market prepared food in this study. In Nigeria, over three-quarter 76.0% of the respondents had preference for home prepared weaning food while 9% and 15% of them had preference for commercially prepared weaning foods and combination of home prepared and commercially prepared weaning foods respectively. (Osei-Efetie, Oyibo, Okperi 2011) In another study in Lahore 44% mothers used homemade weaning diets,30% used mixture of homemade and commercially prepared diets, while 16% used only commercially prepared diet (Manzoor, Daud, Hashmi 2009) Sixty one point five 61.5% had the correct knowledge regarding the frequency of food according to age of the infant by the mother. In a study in India, adequate meal frequency was observed in about one-half 48.6% of children age 6-23months (Khan, Kayina, Agrawal 2012)

Attitude towards complementary feeding was significantly more negative among experimental group compared to the control arm as exemplified by the account of two third of the respondents in the experimental and control groups; correctly disagree that giving children egg and fish will make them steal. This result cannot be taken in isolation without due consideration to their socio-cultural and economic status which could be a pointer to high rate in the infant malnutrition and under nutrition in most sub Saharan African countries (ACC/SCN, 2000). This finding is in line with study conducted by Ogbeide (2004) on nutritional hazards of foods taboos and preferences in Nigeria. Effective training and nutritional education of nursing mothers has helped in the attitude and subsequently on their practice (Fetuga, Babalunde, Oyenuga, 2003)

Mothers attitude in this study showed that reasonable proportion of the respondent both in the experimental and control groups disagree that giving children vegetable will make them have diarrhea. This is very sad, considering abundance of vegetable in this environment which could have been a major and accessible source of vitamins especially for those who could not afford other expensive sources of vitmin.

5.4 Practice of complementary feeding

Practice among the mothers was generally fair, however there was no difference between the experimental and control groups at pre-intervention. Relatively, half of the mothers interviewed in both experimental and control group agree in the use of cup and spoon in feeding their children' while majority still practice bottle feeding. This is a bad practice and it implies that more than half of the mothers do not agree to the practice of cup and spoon in feeding their children. Using bottle in the feeding of a child could invariably be a major contributor to incidence of diarrhea among children of this age group resulting from contamination (WHO, 2003). This finding therefore advocate for education and training to enable the mothers associate poor practices to incidence of diarrhea among infants.

5.5 Intervention (training) result

5.5.1 Evaluation of the training

Effectiveness of any intervention cannot be determined or ascertain without proper evaluation. However, this could only be carried out through stipulated research designs which include quasi experimental designs and randomized trials. For a study like this, three major outcomes were assessed namely; knowledge, attitude and practice. Although, changes in knowledge and attitude do not necessarily translates to probable change in practice.

5.5.2 Comparison of the experimental and control groups at pre intervention

Parents within both experimental and control groups exhibited relatively the same socio demographic background. Age, sex, marital status, educational status and among were part of the criteria in selecting the parents so as to ensure that the two groups were homogenous and similar in possible terms. Marital status did not differ much between the groups and the mean ages between the two groups was a pointer to this as it was too close to each hence, it showed that they were homogenous. This similarity helps in giving good platform for

comparison of results and unbiased outcome. Also similarity in their knowledge and attitude score showed that the two groups might have been exposed to similar events in the past.

5.5.3 Comparison of the experimental and control groups at post intervention

At post intervention, result from experimental and control group showed a significant difference in the mothers' knowledge, attitude, and practice. The knowledge, attitude, and practice toward complementary feeding were better in the experimental group. This was an indication that the training was able to influence and educate the mothers and therefore having a multiplier effect on their practice level. The training significantly influences their hand washing practices and their food preparation immediately after the training and subsequently six weeks after the training. This finding was an improvement on the findings from Solomon (2005) which associated poor feeding practices in food intake as direct factors responsible for malnutrition and illness among children in Nigerian. These finding as further substantiated the findings from Guldan (2005), Penny, et al (2005), and Shi L., Zhang et al(2009) which emphasized importance of educational intervention such as training on complementary feeding practices.

5.5.4 Comparison of the pre intervention and post intervention result in the experimental group

There was great improvement in the knowledge on complementary feeding pre – post intervention. Also, the attitude and practice improved significantly. This further reiterates the benefit of training intervention on mothers' knowledge, attitude and practices

5.5.5 Comparison of the pre intervention and post intervention result in the control

There was no difference in the knowledge, attitude and practices of the mothers at the controls pre – post intervention. This is probably because there was no new information available for the mothers in this group unlike their experimental counterpart.

5.6 Conclusion

Under nutrition and malnutrition is a major public health problem among mothers. The results from the survey showed that knowledge was fair; attitude was negative and practice was fair at the experimental group and the control group. This gave a justification for the training of the mothers on complementary feeding. Almost all of the mothers in the control and of the experimental group were able to mention proteinous foods as the required class of

food. However, only few of the control and experimental group correctly agrees that a child should start adult food after 6 months.

Evaluation of the training showed improvement in Knowledge, attitude, and practices of complementary feeding among mothers in the experimental group compared to the control group. Also, knowledge, attitude and practices improved pre – post training among mothers in the experimental group. Similarly, the hand washing practices and food preparation improved from before and immediately after training.

However, there was no significant difference in the 'immediately after – six weeks after' training evaluation. The results of this study further emphasized that intervention such as training targeting mothers can improve mothers' knowledge, attitude, and above all, the practice of complementary feeding. Therefore, there is need to include training in some of the clinic session for nursing mothers on the proper preparation of food and importance of hand washing which would invariably reduce the incidence of diarrhea, under nutrition and malnutrition among infants and under five. It is important for the parents to know that feeding a child is a gradual process, which needs continuous trial and support. Misconceptions hindering feeding practices can be overcome only by imparting information and knowledge to the parents.

5.7 Implication for Health Promotion and Education

Nutrition education with mother on complementary feeding has some role on infant linear growth and development. Introduction of complementary feeding at six months of age helps in filling the gap between nutritional needs and the amounts provided by breast milk. The timing of the introduction of complementary feeding is important because too early or delayed initiation may be associated with adverse consequences. Adequacy and safe food preparation for young children helps to prevent under nutrition and diseases associated with food.

1. Social mobilization on the importance of good complementary feeding is necessary. Mothers are to be sensitized on the introduction of good complementary feeding after they had fully implemented the compulsory exclusive breast – feeding for six months and thereafter. This will go a long way at reducing the prevalence of malnutrition and under nutrition among the infants and under five.
2. A comprehensive mass campaign and education on nutrition of the infant is important to change the feeding practice of the mothers. This campaign should also be extended to the caregivers on the usefulness of proper nutrition to the proper growth of their children and wards. They should be trained and equipped with feeding skills and tips to help them implement appropriate complementary feeding practices.
3. Campaign on good hygiene, proper food handling and preparation is necessary. This should include washing of hands by mothers before and after food preparation and eating in good environmental condition, using of clean utensils to prepare and serve food, using clean cups and bowl when feeding children and not using feeding bottles which might be difficult to clean.
4. The need to train health care workers and professionals cannot be over emphasized. This is because some of them might have limited knowledge of nutrition and proper feeding practice. This is to enable the mothers especially those who are not so experienced to access information and help when needed and as required. Health workers in some strategic units such as antenatal clinics and other related units should be trained on complementary feeding and other feeding practices. Such training could come in forms of seminar and works shops.
5. Also, nutrition education needs to be incorporated into primary health care programmes. This will mandate the health worker in such health facilities in making available nutrition information in terms of importance of complementary feeding after six months of exclusive breast feeding and other health tips such as defense systems, home based fortified foods, good hygiene while handling their children food.
6. For home visit to be effective, the government need to intensify work on home address, areas should be well defined for proper public health home visiting assignment.

7. Women should be empowered financially, so that they can take good and proper care of their infant. Job creation by the government, for women to be financially capable to assist in the family needs.
8. The Ministry of Health and Organizations involved in child health issues should explore factors which influence mother's knowledge on complementary feeding, hence child nutritional status with a view of taking appropriate action to improve complementary feeding practices. Positive cultural beliefs on complementary feeding practices should be encouraged and negative ones discouraged.

References

ACCSCN (United Nations Administrative Committee on Coordination Sub Committee on Nutrition) 2005. Fourth Report on the World Nutrition Situation. ACC SCN: in collaboration with the International Food Policy Research Institute, Geneva Switzerland.

Akram, D.S. 2005.Weaning practices in Karachi. *Journal of Medical Association* 2005; 28: 124-126

Akhtar, K., Hague, M. E., Islam, M. Z., Yusuf, M. A., Sharif, A. R. and Ahsan, A. L. (2012). Feeding patterns and nutritional status of under two years slum children. *A Journal of Shaheed Suhrawardy Medical College*. 4(1): 3-6

Anigo, K.M., Amch, D.A., Ibrahim, S. and Danbauchi, S.S. 2007. Microbiological analyses of commonly used local complementary foods in North Western Nigeria. *Journal of Medical Science*. 7(5): 875-879.

Anigo, K.M., Amch, D.A., Ibrahim, S. and Danbauchi, S.S. 2008. Infant feeding practices and nutritional status of children in North Western Nigeria. *Asian Journal of Clinical Nutrition*. 1(1): 12-22.

Arandi, S.E. Aging process and potential interventions to extend life expectancy. Telomers, telomerase, and human disease NEngl J.Med 2006 355:1195-7(Pub Med)

Bandura, A. 1977.Social cognitive or learning theory. pp. Pretice-Hall. Englewood Cliffs. N J Hemisphere.

Bereng, L., Bilkes, F. and Naumalo, T.P. 2007.Patterns of decision-making on complementary feeding practices by caregivers of children aged 0-36months in Honking and Klong subdistricts. Ratchaburi Thailand. The University. of Queensland. Brisbane, Australia.

Bhutta, Z. A. 2004. Iron and zinc intake from complementary foods. *Journal of Clinical Nutrition*.; 106. 1295-6

Black, R., Morris, S. and Bryce, J. 2003. Where and Why are 10 Million Children Dying Every Year? The Lancet 361 No. 9376, 2226-34

Black, R.E. 2008.Maternal and child under nutrition: global and regional exposures and health consequences. 371; 243-60.

BAIF Development Research Foundation, 2007. Factors Influencing the Nutritional Status of preschool Children from Selected Area in Five States of India. Washington DC.

Bruno, S.F., Krishna, P.C., Linda, M.B., Prakashm S., David, U.P., and Masamine J. 2013.Effectiveness of nutrition training of health workers toward improving caregivers' feeding practices for children aged six months to two years: a systematic review.,*Nutrition Journal* 12: 66

Butte, N. Cobb, K. Dwyer, J. Graney, L. Heird, W. Rickard, K. 2004. The start healthy feeding guidelines for infants and toddlers. *Journal of American Dietetic Association*,104(3):442-454.

Canadian Paediatric Society, Nutrition committee. Nutrition for healthy term infants. A joint statement of dietitians of Canada, the Canadian paediatric Society and health Canada. <http /www. Hc-sc.gc.ca/fn-an/pubs/infant nourrisson/ nut infant nourrisson term c. html>

Central Statistical Authority and ORC Macro (2012).Ethiopia Demographic and Health Survey 2011 .Addis Ababa, Ethiopia and Calverton, Maryland.

Chandra, R. K. 2010. Food allergy and nutrition in early life: implications for later health. *Proceedings of the Nutrition Society*, 59, 273–277

Chaudhry, R. and Humayun, N. 2007. Weaning Practices and their determinants. *Biomedical* Vol. 23, Jul.–Dec.: 121-124

Chimulary, D. and Nisal, R. 2002. Nutritional status of tribal under five children in Akunad Nagar District, Maharashtra in relation to weaning practices. 30: 215 -22.

Cochrane, W. G. 1953. Sampling Techniques. New York London.

Daelmans, B. and Saadeh, R. 2008. Global Initiatives to Improve Complementary Feeding. In: SCN News. Meeting the Challenge to Improve Complementary Feeding. Moreira, A.D. (Ed.). United Nations System Standing Committee on Nutrition. Lavenham Press. UK, pp: 10-17.

Davis, P., Tagoe-Darko, E. and Mukuria, A. 2003. Water, Koko, and Appetite: Complementary Feeding Practices in Kumasi, Ghana. Maryland. ORC Macro Calverton.

Department of Health and Social Security 2006. Weaning and the Weaning Diet. Report of the Working Group on the Weaning Diet of the Committee on Medical Aspects of Food Policy. HMSO, London.

Dewey, B., Kalb, L., Brieſel, R., Zavitsky-Novik, T., Cluen, N. and Ziegler, P. 2004. FITS: Feeding Infants and Toddlers Study: Overview of the study design. *Journal of American Dietetic Association* 104(suppl 1):S8.S13

Dewey, K. and Brown. K. 2008. Update on technical issues concerning complementary feeding of young children in developing countries and implications for intervention programs. *Food and Nutrition Bulletin*,24:5-28

Dewey, K.G. and Adu Afarwuah, S. 2008. Systematic review of the efficacy and effectiveness of complementary feeding interventions in developing countries. Maternal and Child Nutrition, 4(s1):24-85

Drewett R., Young. B. and Wright, P. 2008. From feeds to meals: the development of hunger and food intake in infants and young children. In Niven, C. A. and Walker, A. (eds). The Psychology of Reproduction. Butterworth Heinemann. Oxford. vol. 3. pp. 204–217.

El-Dosary, L et al2005. Ecological factors influencing morbidity patterns of acute gastroenteritis in children under five years of age in Kuwait. *Bulletin of the High Institute of Public Health*. 12:49-66.

Fay M., Leipziger, D., Wodon, Q., and Yepes, T. 2007. Achieving Child-Health-Related Millennium Development Goals: The Role of Infrastructure. World Development: 35: 929-30.

Federal Ministry of Education 2010. National policy on education.

Foote, K.D. and L.D. Marriott, 2005. Weaning of infants. *Food and Nutrition Bulletin*. 22:4-12

Gershoff, and Datta, 2003. Maternal education child Malnutrition in Developing Countries: A Cross feeding practices in rural Bangladesh. Social Country Analysis. Research Report 111.

Ghana Statistical Service (GSS) and Macro International Inc. (MI) (1999). Ghana Demographic and Health Survey 1998. Maryland, Calverton.

Grantham, M. C., Gregor, S.M. and Cumper, G. 1992 Jamaican studies in nutrition and child development, and their implications for national development. *The Proceedings of the Nutrition Society*, 51:71-79

Green, L.W., Kreuter, M. W. 1992. CDC's Planned Approach to Community Health as an application of PRECEDE and an inspiration for PROCEED. *Journal of Health Education*, 23: 140-147.

Gueye, A.T., Sall, M.G., Kane, O., Ndiaye, A.M. and Diarra D 2002. Protein-calorie malnutrition in Senegalese children. Effects of rehabilitation with a pearl millet weaning food. *Nutrition Representative International*; 36: 1071-9.

Guldan, G.S., Fan, H.C., Ma, X., Ni, Z.Z., Xiang, X., and Tang, M.Z.2005. Culturally appropriate nutrition education improves infant feeding and growth in rural Sichuan, China. *Journal on Nutrition*, 130(5):1204-1211.

Hamidu, J.L., Salami H.A, Ekanem A.U and Hamman, L. 2007. Prevalence of Protein-Energy Malnutrition in Maiduguri, Nigeria. *African Journal of Biomedical Research*. Vol. 6; 123 – 12

Igbedioh, S.O., Ogbeni, A.O., and Adole, G.M. 2007. Infant weaning practices of some Tiv women resident in Markurdi Nigeria April-June.

Imtiaz ,M. and Izhar, T.S.2008.Feeding practices of infants in Lahore. *Pakistan Paediatric Journal*;21 :115

Iqbal Hossian, M., Yasmin, R., and Kabir, I. 2002 Nutritional and immunization status. Weaning practices and socio economic condition of under five children in the villages of Bangladesh. Indian *Journal of Public Health* 43: 37-41.

Igbedioh, S.O. and Ogbani, A.O., College of Food Technology, University of Agriculture, Makurdi, Nigeria.[pubmed, com] 2007.

Jones, G., Steketee, R.W., Black, R.E., Bhutta, Z.A., and Morris, Z.A. 2008. How many child deaths can we prevent this year? Lancet, 362: 65-71.

Khan, A.M., Kayina, P., Agrawal, P., Gupta, A., Kannan, A.T. 2012. A study on infant and young child feeding practices among mothers attending an urban health centre in East Dehli. *Indian Journal of Public Health*: 56:301-4.

KNBS and ICF Macro(2010) Kenyu Demogruhic Survey2008-2009.Calverton,Maryland:KNBS and ICF Macro.

Kumudha, A., Khan, M. E. and Avishek, H. (2010). Complementary feeding in rural Uttar Pradesh. *The Journal of Family Welfare, special issue*, 56:1-56.

Lutter, C.K. and Rivera, J.A. 2005. Nutritional Status of Infants and Young children and characteristics of their diets. *Journal on Nutrition*. 133: 2941s-2949s

Lutter, C. 2005. Meeting the Challenge to Improve Complementary Feeding. In: SCN News. Meeting the Challenge to Improve Complementary Feeding. Morcira, A.D. (Ed.) United Nations System Standing Committee on Nutrition. Lavenham Press, UK. pp: 4-10.

Manzoor, I and Dauds, Hashmine. 2009. Weaning; Knowledge and Practices *Professional Medical Journal*, 16:279-84

Martin, RM2004. Parents' growth in childhood and the birth-weight of their offspring. *Epidemiology*; 15:308–316

Manorell, R., Kettel, Khan. K.L. and Schroeder, D.G. 2004 Reversibility of stunting: epidemiological findings in children from developing countries *European Journal of Clinical Nutrition*, 58 (Suppl.1): S45–S57.

Mills, E.J., Schabas, W.A., Volmink, J., Walker, R., Ford, N., Katabira, E., Ariena, N., Jolliffes, M., Cahn, P. and Montaner, J.2008. Should active recruitment of health workers from sub-Saharan Africa be viewed as a crime? Morbidity among children not reached by the national vitamin A capsule programme

Mukuria, G.A., Kothari, M., and Noureddine, A.(2006) Infant and young child feeding. Update ORC Macro Calverton, Maryland, USA.

Nagra, S.A. and Gilani, A.H. 2007. Variation in infant feeding practices in Pakistan with socioeconomic stratification. *Journal on Tropical Paediatrics* 33:103-6.

National Population Commission (NPC) [Nigeria] and ICF Macro. Nigeria Demographic and Health Survey 2014. Abuja, Nigeria: National Population Commission (NPC) [Nigeria] and ICF Macro, 2014.

Nigeria Demographic and Health Survey 2013: National Population Commission Federal Republic of Nigeria Abuja, Nigeria.

Niam, N.M. 2006. Evaluation of Complementary Foods based on Maize, Groundnut, Pawpaw and Mango flour Blends. *Niger Journal on Nutrition Science*, 22 and 23:8-18

Osio.Eferic, B., Oyibo P.G., Okperi, B.O 2011. Weaning Practices Among Nursing Mothers In Ethiope East Local Government Area of Delta State, Nigeria. *Communal Journal of Biomedical Sciences*; 5 (2): 19 - 28

PAHO/WHO. Pan American World Health Organization.2010 Guiding principles for complementary feeding of the breastfed.

Pelo, G. H, Levitt, E. and Hairu, J. 2003: Improving feeding practices: current patterns, common constraints, and the design of interventions. *Food Nutrition Bulletin.*; 24:45-82.

Penny, M.E., Creed-Kanashiro, H.M., Robert, R.C., Narro, M.R., Caulfield, L.E., and Black. R.E. 2005: Effectiveness of an educational intervention delivered through the health services to improve nutrition in young children: a cluster-randomised controlled trial. 365(9474):1863-1872.

Pollitt, E 2005. Nutrition in early life and the fulfillment of intellectual potential. *The Journal on Nutrition* ;125:1111S-1118S.

Population Reference Bureau. 1995. Breastfeeding patterns in the Developing World. Washington, DC: United States Agency for International Development

Ruel, M.T., 2008. Progress in Developing Indicators to Measure Complementary Feeding Practices. In: SCN News. Meeting the Challenge to Improve Complementary Feeding. Moreira, A.D. (Ed.). United Nations System Standing Committee on Nutrition, Lavenham Press. UK. pp: 20-22.

Rutungwe, R., Oldewage, T.W., Oniang'o, R.K and Voster. H.H.2009 "Co-Existence of over and under Nutrition Diseases in Low Income, High Burden Countries." *African Journal of Foods and Nutrition Sciences.* Vol. 1, No. 200, pp. 31-42.

Sandoval-Priego, A.A., Reyes-Morals, H., Perez-Cuevas, D., Abrego-Bless, R. and Orrico-Torres, E.S. 2002. Family Stategies of Life Associated with Malnutrition in Children less than 2 Years of Age.

Savage, S.A.H., Reilly, J.J., Edwards, C.A. and Durnin, J.V.G.A. 2008. Weaning practice in Glasgow, longitudinal infant growth study. Archives of Diseases of Childhood, 79. 53–156.

Solomon, N.S. and Underwood, B.A. 2005. "Timely and Appropriate Complementary Feeding of the Breast-fed Infant - *An Overview*." *Food and Nutrition Bulletin*- 2 (2): 19.

Stamm, S. 2005. Department of pediatrics, Jinnah Medical College/Hospital Korangi Industrial Area, Karanchi.

Shi, L. Zhang, J. Wang, Y. Caulfield, L.E., Guyer, B. 2007: Effectiveness of an educational intervention on complementary feeding practices and growth in rural China: a cluster randomised controlled trial.

Shrimpton, R.2007. Worldwide timing of growth faltering: implications for nutritional interventions.Pediatrics2007;107(5):75.

Shuhaiber, S. and Al-Rashied, A.A. 2006. Feeding practices and electrolyte disturbances among infants admitted with acute diarrhoea survey in Kuwait. *Journal of tropical pediatrics*. 32:168-73.

Smith, L. and Haddad, L. 2010. Explaining Child nutrition. *Journal on Food Nutrition Science* 21 5-10

Solomon, M. 2005. Nutritive Value of three potential complementary foods based on cereals and legumes. *African Journal on Food Nutrition Science*. 5(2): 1-11

Subedi, N., Paudel, S, Rana, T. and Poudyal, A.K.(2012) Infant and young child feeding practices in Chepang Communities. *Journal of Nepal Health research Council*. 10(21): 141-146

Tedstone, A. E., Dunce. N. A., Aviles, M., Shetty, P. S. and Daniels, L. A. 2008 Effectiveness of Interventions to Promote Healthy Feeding in Infants under One Year of Age: A Review. Health Promotion Effectiveness Reviews. Health Education Authority, London.

The World Bank: 2005 Repositioning nutrition as central to development: A strategy for large-scale action. Washington, D.C.

UNICEF 2008. Children's and Women's Rights in Nigeria: A Wake-up call. Situation Assessment and Analysis. National Planning Commission, Abuja.

UNICEF 2009. A world fit for children. Statistical Review. New York: Public Health Nutrition 2009, 1-10.

Victoria, C.G., Adair, L., Fall, C., Hallal, P.C., Martorell, R., Richter, L. and Sachdev, H.S. 2008: Maternal and child under nutrition: consequences for adult health and human capital. 371(9609):340-357.

Villapando, S. 2008. Feeding mode, infections, and anthropometric status in early childhood. Pediatrics. 106 (5 Supplement) pp. 1282-1283

Walker. C. 2005 When to wean: whose advice to mothers find helpful? Health Visitor. 59. 41–44.

Waterlow JC, 2006. *Protein energy malnutrition*. London: Edward

What is "Nursing Mothers";www.dictionary.com 2015

WHO, 2005. WHO Evidence for Information and Policy. World Health Organisation Geneva.

WHO, 2002. Global strategy for Infant and young child feeding.

World Health Organization, Global strategy for infant and young feeding WHO;2003

WHO, 2005. Contaminated Food: Major Cause of Diarrhea and Malnutrition among Infants and Young Children. Papers on Food and Nutrition. No. 3. WHO., Geneva.

WHO, 2005. Joint WHO/UNICEF meeting on Infant and young child feeding. Statement and recommendations. WHO, Geneva.

WHO, 2001. Expert consultation on the optimal duration of exclusive breastfeeding conclusions and recommendations.

WHO, 2008. The optimal duration of exclusive breast feeding: report of an expert consultation. Geneva: World Health Organization

WHO, 2006. Global strategy for Infant and young child feeding. WHA55.2002/REC/1 Annex 2. Geneva.

WHO, 2002. Working group on the growth reference protocol and WHO. Task force on methods for the natural regulation of feeds. Growth of healthy infants and the timing, type and frequency of complementary foods. *American Journal on Clinical Nutrition*, 76: 26-7.

Wilson, A. C., Forsyth, J. S., Greene, S. A., Irvine, L., Hau, C. and Howie, P. W., 2008. Relation of infant diet to childhood health: the Dundee infant feeding survey. *British Medical Journal*, 316, 21–25.

WorldBank.2006. Repositioning nutrition as central to development: a strategy for large scale action. Washington DC:

World Health Organization 2005. Guiding principles for feeding non-breastfed children 6-24 months of age. Department of Child and Addescent Health and Development (CAH) World Health Organization 20 Avenue Appia 1211 Geneva 27 Switzerland

World Health Organization. 2010. Infant and young child feeding Model chapters for medical professional and allied health professional. Geneva: World Health Organization.

WHO. (2007). Indicators for assessing infant and young child feeding practices. part I definitions. Conclusions of a consensus meeting held on 6-8, November, 2007 in Washington D.C., USA.

WHO. (2010). Infant and young child feeding. Model chapters for medical professional and allied health professional. Geneva:

Wright, C.M., Parkinson, K.N. and Drewett, R.F., 2007. Why are babies weaned early? Data from a prospective population based cohort study. Arch Dis Child. 2004;89 (9):813-816.

APPENDICES

APPENDIX I

Informed consent form

Effect of training on complementary feeding among mothers attending immunization clinic at the Adeoyo maternity teaching hospital, Ibadan

I Lawal, Oluyomi Folasade, a postgraduate student of Health Promotion and Education. Department of Health Promotion and Education, Faculty of Public Health, College of Medicine University of Ibadan wants to carry out a study with the aim of finding out the effect of training on complementary feeding among mothers attending immunization clinic at the Adeoyo Maternity Teaching Hospital Ibadan.

Study participants will be selected by systematic sampling technique. The questionnaire will be semi-structured and interviewer administered.

Your participation in this research will cost you nothing and your participation is completely voluntary. You may choose to withdraw from the research at any time. You will not be paid for participating. Your identity, responses and opinions will be kept confidential and no name is required in filling the questionnaire. You are requested to please give the honest responses to the questions as much as possible.

I have fully explained this research to _____ and have given sufficient information to make an informed decision.

Date _____ SIGNATURE: .....

NAME: .....

APPENDIX II

Questionnaire

Questionnaire on the effect of training on complementary feeding among mothers attending immunization clinic at the Adeoyo Maternity Teaching Hospital, Ibadan.

Dear Respondent,

I, LAWAL OLUYOMI, from the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine University of Ibadan. I am undertaking a research on effect of training on complementary feeding among mothers attending immunization clinic at the Adeoyo Maternity Hospital, Ibadan. Participation is voluntary. Your identity, responses and opinions will be kept confidential and no name is required in filling the questionnaire. You are requested to please give the honest responses to the questions as much as possible.

Thank you.

Lawal Oluyomi.

SECTION A – SOCIO-DEMOGRAPHIC INFORMATION

Instruction: Please mark (√) in boxes provided (as appropriate)

1. Age as at last birthday _____ (Years).
2. What religion do you practice?
   1. Christianity ☐ 2. Islam ☐ 3. Traditional religion ☐
   4. None ☐ 5. Others (specify) _____
3. What is your level of your education?
   1. No formal education [ ] 2. Primary [ ] 3. Secondary [ ] 4. Tertiary [ ]
4. Ethnic group.
   1. Yoruba ☐ 2. Hausa ☐
   3. Igbo ☐ 4. Others (specify) _____
5. What do you do for living/occupation?
   1. Business [ ] 2. Private sector worker [ ] 3. Public/civil servant [ ]
6. What is your marital status?
   1. Single [ ] 2. Married [ ] 3. Divorced [ ] 4. Widow [ ]

7. What is the father's educational level?

1 .No formal education [ ] 2.Primary [ ] 3.Secondary [ ] 4.Tertiary [ ]

8. What is the fathers occupation?

1 Business [ ] 2.Private sector worker [ ] 3.Public/civil servant [ ]

9 How many children do you have [ ]

10 What is the age of your present child?_____

SECTION B: Knowledge of mothers on complementary feeding

Answer YES OR NO	YES	NO
1. Complementary feeding or weaning is the process of giving breast milk to a child.		
2. Complementary feeding is the process of giving both breast milk and adult food to a child.		
3. Complementary feeding is the transition of infant from breast milk to adult food.		
4. Child should start feeding with pap alone		
5. Child should be weaned on pap and milk alone.		
6. Child can be fed with infant formula alone.		
7. Infant can be fed on varieties of adult food as the child tolerate the food.		
8. Lack of protein in weaning diet leads to physical and intellectual growth retardation.		
9. Only small quantity of food should be given when introducing complementary feeding.		
10. Infant should not be forced to take more than he or she want.		
11. Is Vitamin A like palm oil essential in the diet of a child		
12. Is animal protein like egg, meat ,fish essential for child growth		
13.Only one variety of food at a time should be introduced to the child		
14. Adult food should increase in quantity as child ages		
15 Feed should increase in frequency as the child grows		

16. Fruit is needed in the diet of the child		
17. Vegetable should be included in the feeding of the child		
18. Food rich in iron like meat, fish, crayfish is essential in the diet of a child.		

19. At what age (in months) should a child start adult food———————

Why?———————

20. List the types of food that is important for the child growth ———————

21. Can you mention how many times a day a child should eat any meals other than breast milk.

When they are 6-8 month? ———————

When they are 9-11 month? ———————

When they are 12-24momth?———————

22. What are the first foods a young child from 6months should be given other than breast milk———————

SECTION C: Attitude of mothers to complementary feeding

	AGREE	DISAGREE	UNCERTAIN
23. I enjoy engaging in complementary feeding			
24. Having to cook/prepare separate meal is stressful.			
25. Complementary feeding is time consuming			
26. Feeding the child with adult diet is messy			
27. Introducing adult food to child makes mother to have time for herself, because other significant others can assist with the feeding.			
28. It poses additional expenses on the family menu.			

29. Giving children egg and fish will make them steal			
30. Giving children vegetable will make them have diarrhea			
31. Complementary feeding is not easy to practice.			

SECTION D: Complementary feeding practice

	YES	NO
32. I use cup and spoon to feed my child		
33. I use bottle in the feeding of my child		
34. I force feed my child anytime he/she refuses to eat voluntarily.		
35. I prepare my child food by my self		
36. I ensure I maintain good hygiene in the preparation of my child diet.		
37. I feed my child only 3times per day.		
38. I feed my child as often as the child can tolerate.		
39. My hands are clean, so I don't need to wash hand each time before preparing my child diet.		
40. I wash my child utensil with water alone.		
41. I prepare separate food for my young child		
42. My child eat from his or her own bowl		
43. I feed my child with locally available home made food.		

44. My child eats commercial can food. Yes/No

If Yes, give example.....

45. I give my child at least one of the following food items everyday

	Food Item		
1	Egg		
2	Meat		
3	Fish		
4	Crayfish		
5	Beans		

46. At what age do you start complementary feeding of your child?_____

47. Why did you introduce foods other than breast milk to your baby at this age?_____

_____

48. What food combination was given?_____

49. What is the reason for the choice of food combination?_____

50. What utensil do you feed your child with?_____

51. I reheat left over food for my child. Yes/No

APPENDIX III

Observation checklist to assess practice of mothers

Hand washing

Steps	Points
1) Wet your hand with water and apply soap	
2) Rub your hands together	
3) Scrub front and back of your hands	
4) Scrub between fingers	
5) Pay attention to your nail bed	
6) Rinse your hands well under running water	

Each correct step was scored 1 and if step is omitted it will be scored 0.

Pap + Turn brown demonstration

Steps	Points
1) Pour water in a clean pot and allow to boil	
2) Mix pap of ₦10 worth with 1 table spoon of turn brown in a clean bowl	
3) Pour boiled water into the pap and stir	
4) Cook boiled pap for few minutes	
5) Pour inside a clean cup to feed the child	

Each correct step was scored 1 omitted test will score 0.

APPENDIX IV

Letter of ethical approval

TELEGRAMS.....

TELEPHONE.....

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5017, OYO STATE OF NIGERIA

Your Ref. No. .....

All correspondence should be addressed to

The Honourable Commissioner for Health

Our Ref. No. AD 13/ 479/317

5th November, 2012

The Principal Investigator,
Department of Health Promotion and Education.
Faculty of Public Health.
College of Medicine,
University of Ibadan

Attention: Lawal Oluyomi Folasade

Ethical Approval for the Implementation of your Research Proposal in Oyo State

This acknowledges the receipt of the corrected version of your Research Proposal titled; "The Effect of Training on Complementary Feeding Among Mothers Attending Immunization Clinic at Adeoyo Maternity Hospital, Ibadan Oyo State."

2. The committee has noted your compliance with all the ethical concerns raised in the initial review of the proposal. In the light of this, I am pleased to convey, to you, the approval of committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that the committee will monitor, closely, and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of the findings as this will help in policy making in the health sector.

4. Wishing you all the best.

Dr. Akande (Dr.)
Director, Planning, Research & Statistics
Secretary, Oyo State, Research Ethical Review Committee

APPENDIX V

EFFECTS OF TRAINING ON COMPLEMENTARY FEEDING, KNOWLEDGE AND PRACTICES AMONG MOTHERS ATTENDING IMMUNIZATION CLINICS AT ADEOYO MATERNITY TEACHING HOSPITAL, IBADAN, NIGERIA.

Timetable

TIME	DAY 1
8.00 -8.30 am	Registration/Pretest
8.30- 9.00 am	Introduction/Climate Setting Goals and Objectives of the Training
9.00 – 9.15 am	Official Opening Ceremony
9.15 – 10.15 am	Overview of Complementary feeding
10.15 – 11:15 am	Principles of complementary feeding
11:15 – 12:15 pm	Active feeding
12:15 – 1:15 pm	Demonstration on Food fortification and Hand washing
1:15- 2:15 pm	Return demonstration by the mothers
2:15-2:30pm	post test
2:30pm-3.00pm	Closing Ceremony/Lunch Evaluation

Training Topics

1. Overview of Complementary feeding
2. Principles of Complementary feeding
3. Active feeding
4. Food fortification
5. Handwashing

APPENDIX VI

TRAINING CURRICULUM

SN	Objectives	Content	Method	Materials	Assessments
1	At the end of the training, mothers should be able to explain the main goal and objective of the training workshop.	Main goal of the training workshop.	Lecture, questions and answers	Lecture notes and writing materials.	Pre/post test.
2	At the end of the training program, mothers should be able to explain what complementary feeding is all about.	Definition of complementary feeding Appropriate age when complementary feeding should start. Classes of food and the importance of each in the diet of the child.	Lectures, questions and answers.	Lectures, pamphlets, pictures, slides and writing materials.	Pre/post test.
3	At the end of the training, mothers should be able to understand the principles of complementary feeding.	Duration or number of times to feed a young child per day according to age in months. Practice of good hygiene and proper food handling.	Lectures, group discussion.	Lecture notes, pamphlets	Pre/post test.
4	At the end of the training mothers should be able to understand what active feeding is all	Understand the appropriate feeding utensils to use in the feeding of the child. Understand need to	Discussion.	Lecture pamphlets	Pre/post test.

	about.	pay attention. exercise patience when feeding the child.		
	At the end of the training mothers should be able to demonstrate simple food preparation.	Mention the advantage of hand-washing before food preparation and before feeding an infant. Enlighten mothers on food fortification.	Demonstration and Return demonstration.	Pamphlets, posters, charts. practical demonstration by cooking	Return demonstration using checklist
	At the end of the training mothers should be able to practice simple hand-washing steps.	Understanding the importance of hand – washing	Demonstration and Return demonstration.	Charts posters. practical demonstration by washing hand	Return demonstration using checklist

APPENDIX VII

Overview of training

Principal investigator teaching mothers about complementary feeding

Practical demonstration of Handwashing and food preparation

Return demonstration of food preparation by one of the mothers