

**WEANING PRACTICES AMONG NURSING MOTHERS IN IBADAN  
NORTH-WEST LOCAL GOVERNMENT OF OYO STATE:  
IMPLICATION FOR NUTRITION EDUCATION**

**BY**

**ALAO TITILAYO**

**Matriculation No: 54227**

**RN, B.SC (HONS) II. NUTRITION (IB.), PG. DIPLOMA  
FOOD SCIENCE TECHNOLOGY, (NIGERIA)**

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## DEDICATION

This work is dedicated to my darling husband, Kole and my dearest daughters, OreOluwa and Oluwafunto Arowobusoye for their patience, endurance and understanding during the course of this programme.

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## ABSTRACT

Weaning is a process by which foods other than breast milk are introduced gradually into the baby's diet, first to complement breast milk and progressively to replace it and adapt the child to the adult diet. Many risks are associated with weaning in most developing countries. Foods consumed by young children during this process are alarmingly inadequate in calories, protein and micronutrients resulting in growth faltering and malnutrition. This study therefore aimed at determining the current weaning practices adopted by the nursing mothers as well as suggestion of programme approaches that can be effective in promoting appropriate and improved weaning practices for their infants.

This descriptive study was carried out in 5 randomly selected clustered communities from the 10 wards in Ibadan North West Local government area where a total of 5 focus group discussions were conducted among the nursing mothers, followed by interviewing of 500 randomly selected mothers with children of ages 6 – 24 months. The findings revealed that breastfeeding was found to be highly practiced among the mothers, early weaning with watery, maize-based/root / tubers/starchy grains and poor staples was widespread in Ibadan North-west local government.

Of the 500 nursing mothers, 299 (59.8%) started their children on complementary foods before 6 months, 79 (15.8%) of the mothers started after 6 months while, 113 (22.4%) started at the advocated age of 6 months. The most popular reason for introducing complementary foods was that mothers felt that breast milk alone did not satisfy their children any longer 338 (68.4%). Consequently, 326 (65.2%) of the mothers gave energy-based foods (maize based /roots and tubers/ starch grains) food; 85 (17%) gave commercial weaning foods (CWF); 55 (11.1%) gave protein-based foods (Legumes/animal products) and 31 (6.2%) gave energy-based combined with milk/egg/fish foods. However, consumption of legumes /animal products foods, fruits and vegetables was found to be very low among the complementary foods introduced to the children in Ibadan North-west local government.

Furthermore, the most popular reason given by respondents for introducing various types of complementary foods was that baby cry too often since breast milk alone can no longer satisfy them 223 (44.6%). Mothers' comments on bad weaning practices were identified; 103(20.6%) respondents identified poor environmental condition of the

house while 32 (6.4%) of the mothers had mentioned giving of inadequate diet (such as maize-based, roots and tuber/ starchy grains only). 320(64.1%) mothers were unable to differentiate between problems due to teething and those related to their weaning practices. Consequently, they regarded certain symptoms (such as diarrhoea, vomiting, fever, constipation, poor appetite and cough) as natural teething processes, which every child must undergo. The results further showed that 230(46%) mothers introduced weaning foods before 6 months, 79(15.8%) after 6months while 181 (36.2%) mothers introduced food at the advocated age of 6months.

A significant association was found between (i) education of mothers and the age of the child when introduced to weaning foods ( $p=0.033$ ), and (ii). occupation of mothers and types of weaning foods given to their children ( $p= 0.000$ ). No significant association was found between occupation of the mothers and the age of the child when introduced to weaning foods ( $p= 0.069$ ).

Those mothers who introduced weaning foods to children at age of 6 months were very low. This is of great concern. These findings indicate that improper timing; the quality and quantity of weaning foods need to be corrected. The correction should commence with health workers and then the nursing mothers. Thus, health workers need to train and motivate mothers to practice appropriate weaning practices (i.e., well-timed and sufficient supplementation) to reduce dietary deficiency and early malnutrition.

**Key Words:** Weaning Practices, Nursing Mother, young children, weaning foods.

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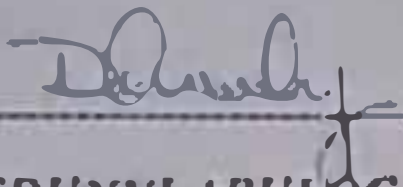
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## CERTIFICATION

I certify that this work was carried out by **TITILAYO ALAO** in the Department of Health Promotion & Education, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria.



**DR. OYEDUNNI ARULOGUN, MPH, PH.D, CCST.**

Department of Health Promotion and Education  
Faculty of Public Health  
College of Medicine,  
University of Ibadan,  
Ibadan, Nigeria

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**ABBREVIATIONS**

**CWFs – Commercial Weaning Foods**

**BFHI – Baby Friendly Hospital Initiative**

**EBF – Exclusive Breast-Feeding**

**UNICEF – United Nations Children Emergency Funds**

**NDHS – National Demographic Health Survey**

**FGD – Focus Group Discussion**

**W.H.O – World Health Organization**

**UNEP – United Nations Environmental Protection Agency**

**FAO – Food and Agricultural Organization**

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## CHAPTER ONE

### INTRODUCTION

Weaning is a process by which foods other than breast milk are introduced gradually into the baby's diet, to complement breast milk and ultimately to replace it and with the adult diet, such that the child can get enough energy and nutrients from the family diet (Savage 1993). Winkoff (1994) also described weaning as an essential part of infant feeding which is a sequence of events from a period of exclusive breast-feeding specifically modified for infants, to the introduction of family foods and the cessation of breast-feeding.

Exclusive breast-feeding for the first 6 months is the World Health Organization (WHO) 's recommended method of feeding full-term infants by healthy, well-nourished mothers. [WHO2000]. However, after 6 months, breast milk alone is not sufficient, both in quality and quantity, to meet the nutritional requirements of the child especially for energy and micronutrients notably iron, zinc and vitamin A. [Waterlow 1992, Von Steenberg 1991, Pipes 1993]. As the child grows older, therefore, it is necessary to supplement the breast milk with other foods. This is a weaning process: the introduction of foods other than breast milk into an infant's diet while slowly reducing breastfeeding. [WHO 2000, Cameron 1983]

This weaning process usually begins from child's second six months of life and may be extended for more than two years. The well being of the infant during weaning depends on the length of the period of breast feeding alone, or whether the weaning is abrupt or gradual, the quality and quantity of weaning foods which are especially locally available (Cohen et al, 1994)

Following the 1990 Innocenti declaration to promote, protect and support breastfeeding, Baby Friendly Hospital Initiative (BFHI) was launched in Nigeria in 1992. This BFHI is the United Nations Children Emergency Funds (UNICEF) approach to supporting the mandate of Innocenti declaration and its objectives are as follows:

1. Infants must be exclusively breast fed for the first 6 months of life. No foods should be given to the infants other than breast milk.
2. Infants must be introduced to complementary foods and also continuation of breast

milk after 6 months to 2 years or more.

Weaning process is actually in line with the second part of the Baby Friendly Hospital Initiative (B.F.H.I.) objectives. (Nutrition and Wellness 2005)

Breast milk has for a long time been recognized as the ideal food for babies. When given alone (i.e. exclusively) during the first 6 months of a baby's life, it leads to adequate growth and development, and reduces infant morbidity and mortality (Cunningham et al, 1991)

Breastfeeding is the first step in life which ensures that infants and young children get a healthy and nutritious start in life. There is a wealth of information on the benefits of breastfeeding, especially exclusive breastfeeding (EBF), for the mother and infant. Some of these are adequate growth, anti-infective properties and increased intelligence quotient (Savage King 1994)

Weaning from a physiological point of view is a complex process involving nutritional, microbiologic, biochemical, and psychological adjustments (Lawrence 1999). The patterns assumed during this weaning process vary greatly around the world. Mitzner et al (1997) explained that the principal variations in weaning practices could be determined by three decisions women must make. These include; age at which weaning will begin and end; the length of the weaning period and the types of weaning foods provided to the baby.

However, many factors are known to affect weaning practices. In developing countries some of the factors identified are poverty, grave mal-distribution of income, various attitudes, traditional beliefs about foods and their weaning practices. Technological under-development and widespread illiteracy especially among women are not left out. Economic factors are the most obvious ones responsible for some mothers weaning practices especially, when income are barely inadequate. Poverty is the main contributing cause, which appears to be greatly aggravated by lack of proper dietary knowledge (Igbedioh 1994). The standard of living including food consumption, as well as income and housing varies widely within the country.

All these factors are so far at the root of the detrimental weaning practices which eventually affect childhood nutrition. Some of these detrimental weaning practices include improper timing of the introduction of complementary foods, sub-optimal breast-feeding practices, infrequent feedings, inappropriate feeding methods, childcare practices and unhygienic ways of handling and preparing foods. The effects of these practices is even



more damaging when a child is sick. The danger and hazards of early supplementation and weaning have also been studied (Savage 1994, Cohen et al. 1994, Guldan et al. 1994, Casulo et al. 1996). These include growth faltering and increased susceptibility to infections.

Despite different reports on weaning practices in Nigeria, very little information is documented on the subject of the weaning practices in Ibadan North West local government. Therefore, the current study was undertaken to assess and document the weaning practices of the nursing mothers, the influencing factors as well as the weaning/complementary foods fed to infants and young children, in Ibadan North West local government. The results obtained can be applied to other parts of Ibadan and areas with similar food and eating patterns.

## NATURE AND EXTENT OF PROBLEMS

Weaning is a transitional period from breast-feeding to adult diet usually associated with a number of concerns and problems in developing countries. The major concerns are what foods should be given to the child and how and when they should be given (Hovf Vander 2000).

In developing countries, the main risks associated with weaning are malnutrition and infection (WHO 1995). Similarly, it was also stated by Cohen et al (1994) that in developing countries, the age of introduction of weaning foods is of public health importance because of the risk of diseases, particularly diarrhoea diseases from the contaminated weaning foods and the risk of growth faltering and malnutrition from delayed weaning (Cohen et al 1994).

Huffman (1994) reported that in most developing countries, the essential foods for children are woefully inadequate in calories, protein and micronutrients resulting in growth faltering and malnutrition. Study in African countries by the United Nations Emergency Funds UNICEF (1992) also noted that poor weaning practices explain why child malnutrition are typically at a peak in the second year of child's life.

The age at introduction of weaning foods varies and is influenced by the tradition of the different ethnic populations in the country, urbanization and the socioeconomic status of households (UNICEF 1989). The introduction of supplementary foods is often accompanied by stress and ill health for the infants in developing countries, mostly because the foods are

not tailored to the infants need. (Pipes 1993, Rowland 1986, Kakitahi 1981). Many traditional weaning foods in Africa are only a slight modification of adult foods involving only mashing and dilution without taking into consideration the specific nutritional requirements of young children. Adult diets, especially in developing countries consists of highly starchy staples which are bulky and unless properly modified, unsuitable for infants and young children with their small gastric capacities. (Moshia et al 1998). During the complementary feeding period, children require foods that are soft, hygienic, energy- and nutrient-dense to meet their high nutritional requirements (Moshia et al 1998). Moreover, weaning foods in developing countries are usually prepared under unhygienic conditions using water from unprotected sources thus exposing the child to weaning's dilemma (Rowland et al 1986).

In West African countries, weaning can be a period of problems and vulnerability for the survival of a child. Usually, before mothers embark on weaning, there is hardly any problem with the health of the babies especially those that have been exclusively breast fed for the first six months of life. However, with the introduction of complementary foods at about six months, many mothers run into problems. Many mothers introduced complementary foods much earlier than the recommended age of six months, often even in the first month of life. Some of the foods given are usually bulky and low in energy density. Another problem relating to the introduction of foods is that many mothers delay the introduction of semi-solid foods beyond the recommended age of six months. Some mothers do not even know the implications of introducing complementary foods either too early or late. Another problem related to timing is the inappropriateness of the foods that are introduced; some mothers even introduce food into the diet before a child can chew it adequately (Okeke 1989, Arinze 1984, King et al 1997, Uwaegebute 1982).

People from low-income groups seldom feed meat, eggs or fish to their children because of socio-economic factors, taboos, and ignorance. The weaning foods available in our local markets are still beyond some mothers' affordable capacity. Many mothers are finding it increasingly difficult to give foods of good quality to their children. However, there are few mothers who can afford the cost of these weaning foods but do not know the right choice for their children and as a result give foods of poor nutritive value to their children (Onoliok 1992, Nnanyelugo 1985, Cherian 1981).

Availability of a great variety of artificial formula and impact of high pressure commercial advertisement of commercial weaning foods (through the press and other media) especially in urban areas are also known to influence choice of foods given. This has led mothers to early abandonment of breast feeding and greater use of these Commercial Weaning Foods (CWFs). Some mothers have come to depend greatly on CWFs and have neglected the use of food items available in their locality. Despite the high cost and campaign against the use of these processed weaning foods, many mothers are still buying them. This may be due to the fact that they want to be regarded as modern mothers or for convenience reasons (WHO - UNICEF 1990).

Finally, cultural beliefs can influence maternal-child health and nutritional status in important ways, and those affecting child weaning are of great interest. The diversity of young child feeding and weaning practices across specific local contexts has been attributed to different knowledge, attitudes and practices of individual parents and to various socio-economic constraints. One challenge for this study is to tease apart the various weaning practices and the determinants of general pattern of complementary feeding in Ibadan North West local government.

*Justification*

Weaning is a large development step for both the infants and mothers. Apart from its being one of the most critical period in a child's life nutritionally, it is also a process of adaptation both nutritionally and socially. The child becomes less dependent on his mother and it is also a process of adaptation to the environment (UNICEF 1994). Weaning time (i.e. from 6 months to 3 years) can be dangerous for children. It is the time of a child's life when he is most vulnerable to malnutrition, morbidity and mortality. UNICEF [1992] stated that in African countries, infrequent and inappropriate weaning practices are common. It is therefore imperative to find out how far this statement is applicable to the nursing mothers' weaning practices adopted by the mothers.

Despite various reports, the subject of weaning practices among the nursing mothers has not received adequate scientific attention in Ibadan of Oyo state. Consequently, there is very little documented information on weaning practices among the nursing mothers in Oyo state.

Specifically, the study set out to assess and document the knowledge, attitudes and practices of the mothers towards weaning and the influencing factors responsible for their weaning practices. The results obtained can be applied to other parts of the country with similar food and eating patterns. This would also help in promoting awareness, proper mobilization and training of the health workers by using nutrition education, advice, and demonstration to teach appropriate and timely introduction of weaning foods, methods of food preparation as well as respond to the concerns and growing need for proper infant/young child feeding practices.

### Research questions

1. What are the various types complementary food given to babies?
2. What are the reasons for giving these complementary foods?
3. When do mothers start giving complementary foods?
4. Is there any association between occupation of the mother and weaning practices?
5. Is there any association education of the mother and weaning practices?
6. Is there any association between parity of the mother and weaning practices?
7. To what extent do mothers breast-feed their babies?
8. What is the source of information that makes the greatest influence in mothers' decision making in respect to her weaning practices?

### Objectives of the study

The broad objective of this study was to assess the weaning practices among the nursing mothers in Ibadan North West local government and to determine their implications for health education.

### Specific objectives

The specific objectives were to:

1. Assess type of commonly weaning foods given to children
2. Identify the reasons why mothers give types of complementary foods given.
3. Document the age at which weaning foods are commenced by the nursing Mothers.

- 4 To assess mother's source of information and those that influence her decision-making in respect to weaning practices.
- 5 To document the weaning problems encountered by the mothers
- 6 Recommend, based on the findings of this study, appropriate nutrition education using the health workers and the nursing mothers.

### Study hypothesis

The following null hypotheses were tested by the study. There will be no significant association between:

1. Education of the mothers and the children's ages at introduction to weaning foods.
2. Occupation of the mothers and the children's ages at introduction to weaning foods
3. Occupation of the mothers and type of weaning foods first introduced to children
4. Mother's source of information and the children's ages at introduction to weaning foods

### Definition of terms

Weaning foods mentioned by the respondents who participated in this study were classified into five groups as listed below. These categories of foods were used based on previous similar studies by (Odumodu (1994) and Onofioke (1992).

1. Maize-based only / roots and tubers /starchy grains only
2. Legumes and/or animal products
3. Maize – based +milk &/ or animal products
4. Commercial Weaning Foods (CWFs)
4. Fruits and vegetables

1. *Maize-based foods* (pap only, tuwo, egbo and semovita).

*Roots and tubers* (Yams/cassava based foods)

Cassava based foods include lafun,eba served with only stew and /or soup

Yam and its products include (amala, potatoes,pounded yam)

*Starchy grains* (Boiled rice) served with only stew and/or soup

2. **Legumes and/or animal products**

Animal product food mentioned were boiled egg/fried egg, boiled fish/meat, milk.

Plant products foods include soyabeans and its products (i.e. soymilk, soy moinmoin or soy akara)

red/white beans and its products (i.e. moinmoin, akara, ekuru).

3. **Maize-based + milk /animal products foods**

- Pap + milk
- Agidi/pap + egg/fish

4. **Commercial Weaning Foods**

Infant formula products (Nan, Similac, Cow and Gate, Babylac, Similac, Jerry, Comelac, S.M.A., Mix me and Milliga

Food supplement products include Nutrend, Golden Mom, Com flakes, Cerelac, Babecna, Comelac, Weetabix, Falex, Soyapap Powder, Manc,

Beverage drinks (Milo, Bomvita, Pronto etc.)

5. **Fruits and vegetables (orange, Pawpaw, Banana, Ribena, Tasty time.**

### *Organisation of the Text*

The first chapter serves as the general introduction, which discussed the research problems, justification of the study, objectives, and hypothesis.

Chapter two reviews relevant literature on weaning patterns, timing of introduction of complementary foods, weaning practices in Nigeria and other countries, problems that may arise during the weaning period, and conceptual framework.

Chapter three described the methodology used in the study, which comprised sampling procedure, reliability, validity, and method of data analysis and limitation of the study.

Chapter 4 contains the findings of the study, which are presented graphically and in tabular forms with appropriate statistical analysis.

Chapter 5 rounds up the dissertation with a discussion of the implications of the findings, conclusion and recommendations.

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## CHAPTER TWO

### LITERATURE REVIEW

#### *Prevalence Of Malnutrition During The Weaning Period*

Prevalence of PEM (Protein Energy Malnutrition) in infants after six months is high in Africa (Lalude and Fashakin 2006, Plahar and Hoyle, 1991; Ojofemi, 1982). This is because infants at this stage of development required higher energy and protein in their diet so as to meet increasing demand for metabolism. Wharton (1996) also reported that in the Third World countries, morbidity and mortality in infancy rise sharply at the time of weaning from human milk because of rapid onset of infections. The report stated further that malnutrition is a major threat to the weaning in the developing world.

The most common form of malnutrition in Africa is protein energy malnutrition affecting over 100 million people; especially children under 5 years of age 30 – 50 million of the cases (Maletnema 1992, Odeode 2005). Up till now, protein energy malnutrition (PEM), a known sequel of food insufficiency and poor socio-economic conditions continues to be a major public health problem and a source of major concern in health problem as well as major concern in developing third world countries including Nigeria (Dulger and Sekeroglu, 2002; Odebode 2005). The World Health Organization (1983) estimates that around 300 million children have growth retardation related to malnutrition. In many developing countries 20- 75 % of all children under 5 years of age have suffered from PEM (DeMaeyer 1996).

Studies in Nigeria found that protein- energy malnutrition was the second cause of death in under five years old. It is estimated that in Nigeria 40 percent of the children who die under the age of five years were severely malnourished (Ebrahim 1991). Children in less developed countries are at greater risk of nutritional deficiencies and secondary functional disturbances during the second half of infancy, when significant amounts of complementary foods are usually introduced into the diet in addition to breast milk, than at any other time in postnatal life (WHO 1995). For instance, a report in Nigeria, discussed the growth pattern of two hundred and fifty infants (0-12 months)



attending the University of Port Harcourt, Primary Health care center. The weights and height of the children were compared with the National Centre for Health statistics (NCHS) 50<sup>th</sup> centile standard. The growth of the infants (combined sexes), 4-12 months old fell below the 50<sup>th</sup> centile of NCHS reference standard. Infant's aged 0-4 months had a growth curve similar to that of the reference standard. There was a decline in weight between ages 6-12 months. The decline in growth was more pronounced during the weaning period (Ofuya 2002). The marked drop in growth (weight for age) between 4 and 10 months of age could be due to poor weaning practices among these infants by parents. Report has indicated that where weaning practice is poor, infants have been observed to suffer from malnutrition (Vella, Tomkin and Marshall 1995).

Furthermore, studies by Underwood (1995) reported that in developing countries, 184 million children represent one third of the under five population who are malnourished with their weight-for-age less than 2 standard deviation of the reference. The same report noted that malnutrition is rare among infants in the poor populations who have been exclusively breast fed from birth through six months. Children are particularly vulnerable to malnutrition during the weaning process. It is during this transition that the exposure to environmental pathogens is most intense, the likelihood of inadequate nutrient intake is most probable and the emotional trauma of less intimate maternal infant contact is most stressful (USAID 2003). Data of Demographic and Health Survey (1992) on nutritional status of Peruvian children showed the dramatic increase in malnutrition between six months and two years. During this period, under-weight (low weight for age), wasting (low weight for height) and stunting (low height for age) are most prevalent. This pattern is similar in most developing countries. A comparative study of the weaning practices and growth pattern in 3-24-month-old infants in Mushin local government area of Lagos, Nigeria noted a greater proportion of the infants were stunted in their 2<sup>nd</sup> year of life (Abidoye 2000). Similarly, a documented report on protein energy malnutrition in Nigeria indicated that, among the 67 (42 females and 25 males aged 3 months to 5 years) children who participated in the survey, 18% were categorized as marasmus, 16% marasmic kwashiorkor, 15% kwashiorkor and 51% underweight (Odeboke and Odeboke 2005). The malnutrition and infections associated with them are responsible for a significant proportion of the 13 million deaths among infants and children under 5 years of age worldwide each year (Carlson 1993).

## Causes of Protein-Energy Malnutrition in Nigerian Children.

Protein- energy malnutrition is still highly prevalent in Nigeria due to faulty weaning practices, poverty, poor sanitary conditions, minimal medical attention and endemic childhood infections (Nweze 1995). It was also reported that the insufficient food intake affects the child principally as a result of one of these causes stated below;

- 1). when the child is offered little food and is unable to get more by him/herself . (for example, restricted intake of protein during illness or prolonged exclusive breast feeding ;
- 2) when the child is offered ample foods but the quantity is of inadequate quality for his/her needs, resulting in low protein and/or energy density; 3) improper feeding practices such as non-hygienic preparation of over- diluted formula or starch guels, which give rise to early age severe protein- energy malnutrition (Nweze 1995)

Protein- energy malnutrition (PEM) can also results from prolonged deprivation of essential amino acids and total nitrogen and / or energy substrates. Dietary energy and protein deficiencies usually occur together, but sometime predominates the other and if severe enough may lead to the clinical syndrome of kwashiorkor (predominant protein deficiency) or marasmus (mainly energy deficiency). The origin of PEM can be primary, when it is the result of inadequate food intake, or secondary, when it is the result of other diseases that lead to low food ingestion which can include, inadequate nutrient absorption or utilization, increased nutritional requirements and / or increased nutrient losses (Nweze 1995). The causes of the protein- energy malnutrition, especially among young children, remained one of the principal health problems in the developing countries including Nigeria.

It is estimated that in Nigeria 40 percent of the children who die under the age of five years were severely malnourished (Ebrahim 1991). The causes of protein- energy malnutrition are multi-factorial though it is fairly well established that social and economic factors are the most important determinants in its etiology (I'agbulc 1999). Other conditioning factors include lack of mothers' education, infectious disease, low food availability and poor feeding habits. Various diseases may also contribute to PEM. It has been reported that all malnourished children usually have one form of infection or another preceding or associated with malnutrition. The most common diseases associated with PEM include malaria, diarrhoea, and bronchopneumonia. These diseases reinforce the

well-known interaction between infection and malnutrition (Ighogboja 1992, Fagbule 1999). Among viral infections, measles is often the most serious one and the most important cause of kwashiorkor (Nweze 1995). Furthermore, Aikhohionbare, Yakubu and Naida (1999) study found that death due to measles complications was 24 percent (74 death) closely followed by PEM 23 percent (70 deaths) and respiratory tract infection was responsible for 18 percent (55 deaths). The age distribution of death over the study period was 1-12 months (35.2%); and 13-24 months (32%).

### Factors affecting weaning practices

Cultural beliefs can influence maternal-child health and nutritional status in important ways, and those affecting child weaning are of particular interest (Winkoff 1998, Gray 1994, Sellen 2001). The diversity of young child feeding practices across specific local contexts has been attributed to different knowledge, attitudes, and practice of individual parents and child caregivers and to various ecological and socioeconomic constraints (Maher 1992, Van Esterik 1990). Study by Sellen (2001) reported that various factors have been identified to be influencing the weaning practices of the mothers in developing countries. These may include maternal factors (such as seasonal patterns of work activity and food availability, household income, and access to clean water and primary health care), general cultural factors (such as health beliefs and practice and food taboos), and factors specific to individual mothers or caregivers (such as levels of social support for breastfeeding; and individual experience, attitudes, and practice). In a study among rural East African populations, the focus group participants suggested that weaning patterns are strongly influenced by seasonal factors, and individual mothers often stated an intention to introduce adult staple foods and terminate breastfeeding at the end of the long rains (Sellen 2001). Similarly, a study in rural Mexico described the weaning practices of rural women in two Mexican towns and the cultural beliefs upon which practices are based. These women's decisions regarding infant feeding were influenced most by custom and the advice from doctors and family members (Lipsky, Stephenson, Koepsell, Gloyod and Bain 2004).

In Nigeria, mothers' choices of weaning practices are influenced by many factors, namely taboos, superstitions, religious factors, availability of alternatives such as formula and supplements on the market and their affordability. Other factors identified are mothers'

personal characteristics such as age, education, occupation, income, health status and the amount of time devoted to child care (UNICEF/FGN 1994). Though, poverty is the main contributing cause of malnutrition, it is greatly aggravated by lack of proper dietary knowledge. Economic factors are also the most obvious ones responsible for weaning practices, which can lead to malnutrition. Social-economic status determines the type of weaning foods and weaning patterns adopted. This in turn reflects on the nutritional status of the weaned infants. Most often, animal proteins are not included in the diet of the weaned infants because they are outside the reach of the under-privileged parents due to their high cost. As a result of which they suffer from inevitable vicious circle of malnutrition and poverty (UNICEF/FGN 1994).

In many families, food preparation is affected by certain factors which include poor sanitation which results in unsafe disposal of faeces thereby allowing faecal germs to spread to water, food, food handler's hand, food containers and utensils. Inadequate supplies of water, unless people have access to a plenty supply of water, they are unlikely to use scarce water for hygiene purposes such as hand washing. Other factor identified is the shortage of cooking fuel. Whenever adequate cooking fuel is not available or is expensive; families often cook large quantities of food stored in for the next meal. Refrigerators may be beyond the means of these families or they do not have access to electricity. Stored foods may then be served without adequate reheating. Low income also affects families' choices about the food to buy and how to cook and store it. (Dialogue on Diarrhea 1994).

FGN/UNICEF (1997) documented that with the prevailing economic condition in Nigeria, the prices of consumer goods have escalated beyond the reach of low-income groups. In the food markets, the prices of carbohydrate rich products are expensive; the prices of protein rich foods are completely beyond the means of most households. However, households with decreasing purchasing power are constrained to depend on cheap and affordable foods items, which include at times, rotten and left over food items. In fact, many households no longer include items like egg, milk, meat, fish and other foods that are rich in vitamins, proteins and minerals in their menus. There is therefore considerable food insecurity and malnutrition in the country. (Federal Government of Nigeria (FGN) / UNICEF 1997).

Many beliefs about the termination of breast-feeding depend on characteristics of

a child and the child's developmental level. Examples related to the initiation and completion of the weaning process includes the eruption of teeth (Almedon 1991a, 1991b, Harrison *et al* 1993), the onset of walking and a perception that the child was old enough to consume an adult diet (Harrison *et al* 1993). Another factor affecting beliefs is the child's appetite as perceived by the mother. The recognition of the child's appetite as an indication of ill-health is seen in many studies (Bentley *et al* 2003). Many food taboos for young children may limit the type of foods that can be offered. Similarly, food habits and beliefs have major implications for food safety during the weaning period. Unfortunately, in many societies the relationship between diarrhea and food contamination is not understood. For example, in Uganda, some parents believe that diarrhea is caused by false teeth (Koukauna *et al* 2003). Another study in Orissa, India, revealed that, 65% of mothers believed that diarrhea is caused by the casting of the evil eye, 44% by indigestion, 10% by eating "hot foods" such as mango and eggs, 8% by teething and 35% by food eaten by breast feeding mothers. Many mothers at a time blamed their own breast milk for causing diarrhea. Interestingly, in many cultures, babies' stools are not considered to be dirty or contaminating (Oyemade 1998). Harfouche and Osutor (1990) also observed that Islamic Culture incorporates the art of weaning with religious teaching.

The knowledge, attitude and beliefs of a child's caretaker may be the most important determinants of whether the child will be well nourished. A mother's beliefs about the nutritional contents of foods and her understanding of the causal factors of disease may have very powerful effects on a child's well being. Also, most areas in India believed that children should not be given solids until they cut some teeth. Fruits and green leafy vegetables are rarely fed (Joshi 1994).

Apart from all these factors mentioned above, availability of time is one of the major factors that govern the feeding patterns of infants. If, in addition to caring for infants and children, mothers have to work outside the home, the greater demand on their time competes with their care and nursing capacity. In such circumstances, they do not always prepare food according to correct safety principle (Mitzner, Scrimshaw, Nevin and Morgan 1997). The report further stated that, mother's capacity to give improved complementary foods to her child depends on her access to cash and other family resources and the time she has to prepare and feed complementary foods. Most women in developing countries do time

consuming labor outside the home. Unfortunately, increasing a mother's income by non-domestic employment may decrease the time available for food preparation and child rearing (Miltner *et al* 1977).

Education is said to increase both the ability to earn income and the ability to appreciate the importance of care giving. In the study of the infant weaning practices of some Tiv women resident in Markurdi, Nigeria, the study showed that mother's educational level and occupation influenced the time of introduction of weaning foods (Igbedion 1996). The study also showed that price was a major determinant influencing the choice of foods fed to the infants. Low level of education is a reflection of contamination infections and diarrhoea during weaning (Malu and Leitig 1994). Similarly, a study conducted in rural Bangladesh found that maternal education is associated with variables that reflect more intense care given to their children that is less distraction while feeding, a cleaner feeding environment and more initiation of child feeding at the appropriate time (Guilden, Zhang, Hong, Zhang and Fu 1994). Also, in rural areas of Asia, under educated mothers' taboos and customary food practices seem to be the significantly causative factors for malnutrition in young children (Tontisirum and Yamborisut 1995). It is becoming increasingly evident that maternal education affects a child's health and nutritional status through its effect on her health care seeking behaviors. Better-educated women are more likely to utilize available health care and community service facilities than women with no education (Joshi 1994, Caldwell 1986).

Women are an important target group in any nutrition programme because the maintenance of adequate health particularly of infants and children is a critical maternal role. Women are a crucial link between the family and the health care system and in addition, produce purchase, prepare and serve food and provide a clean and safe environment. Therefore, inadequate maternal and childcare is one of the underlying causes of poor weaning practices (Popkin, Lasky, Litvin 1990).

### Timing of complementary feeding

Good nutrition is fundamental to a child's health but its importance during the early years increases manifold, as the weight gain during the first year is dramatic, from 3kg at birth to 10kg at the age of one year. Along with the physical growth, there are

qualitative changes in the child's behavior and social relationship that can be affected by the nutritional status of the child (Heir 2004). In order to fulfill the nutritional requirements of a rapidly growing child, addition of semi-solid and solid foods are essential for breast fed babies. As result, WHO now recommends the introduction of complementary foods around the sixth month of life, instead of between the fourth and sixth month, as previously recommended (WHO 2001). Similarly, it was also reported in another study that during the first 6 months of life, breast milk is the preferred nutrient source for the infant, however, after 6 months of age, the energy and nutrient requirements of the infant exceed what can be supplied by the breast milk alone (Werk and Alpert, 1998).

The timely introduction of properly formulated and prepared weaning foods is necessary for the growth and survival of infants, especially in the developing world (Jansen 2002). The consequences of inappropriate weaning carry a lot of risks. Too early initiative of weaning is a risk factor for both increased morbidity due to diarrheas and food allergies, as external challenges are introduced into the immature digestive tract, and infant malnutrition set in to the normal decrease in maternal milk production as the baby is withdrawn from the breast. On the other hand, too late weaning can lead to faltering growth, decreased immune protection, and again increased diarrhea disease and malnutrition when exclusively breastfeeding becomes inadequate (Abidoeye 2000). Although no specific time for the introduction of complementary feeding has been universally shown to have positive short or long term effects on health (FGN/UNICEF 1990).

In developing countries, the age of introduction of weaning foods to breast fed infants has public health importance because of the risk of diarrhea disease from contaminated weaning foods, and the potential risk of growth faltering and malnutrition if appropriate foods are unduly delayed (Cohen 1994, Aregai 2000).

The age at introduction of weaning foods varies and is influenced by the tradition of the different ethnic populations in the country, urbanization and the socioeconomic status of households. In urban areas, the tendency is early weaning, but in some rural areas weaning is delayed up to one year or more (Tessema 1997). In Nigeria, as in most other sub-Saharan countries, the timing of introduction of complementary foods varies

due to many factors. (Jansen 2002). FGN/UNICEF, [1994] report on the nutritional status of women and children in Nigeria showed that about 40% of children were introduced to complimentary foods before the age of four months and in most cases to a carbohydrate based diet that was enriched by only a small proportion of milk. Substantial number of children was also not introduced to complementary foods earlier. The report stated further that, complementary feeding practices observed by the majority of mothers did promote adequate nutrition.

Inadequate timing of complementary feeding was common among children who were started on complementary food before four month and those who started after nine months as well as those who did not give complementary foods at all (Sellen 1998). In a study about the weaning practices in Ilorin, 44.2 % of the mothers had commenced weaning by 3 months of age while 83.9 had done by 6 months. Hunger indicated by crying after a feed or demand for more breast milk was the commonest reason for weaning (Fagbule and Oloosebikan 1992). In another study, Savage (1995) reported that there is no exact fixed time for a baby to start taking other foods. All babies are different and all mothers are different. Most mothers have enough breast milk for their babies for six month; some have enough for nine to ten months. But, some babies begin to outgrow their mother's milk at about four to six months. The earliest they should be given is four months. One of the commonest reasons for introducing complementary foods is another pregnancy (or the desire for another child).

Weaning is initiated in many cultures at an even earlier age than is nutritionally necessary. A study in Asia revealed that complimentary foods are introduced much earlier than the recommended age of 4 months (Underwood 1999), often, even in the first month of life. Such foods are usually bulky and low in energy density. However, in a study on the patterns of child feeding and health seeking behavior in Bangladesh, the report revealed that mothers restricts complementary feeding because they believe foods cause stomach problems. Traditionally, Bangladesh does not persistently encourage their infants to eat other foods until 18 to 24 months (Zeitlin and Islam 1989). Another study done on weaning practices in developing countries, revealed that traditionally, weaning starts between 3 and 12 months of age. Before the end of maternity leave the working mother starts introducing food formula and then semi solids. Some people believe that



African women are unable to produce enough milk to sustain their baby's growth after 3 months of age. Various reasons were given by mothers for the early supplementation; some find it fashionable to put the child on the bottle, while others followed food advertisement blindly; a few believed that they were not producing enough breast milk to sustain the child's growth (Ajenifuja 1987).

Early weaning has been associated with interference with breast-feeding, increased risk of infection and in some places increased risk of developing celiac disease (Odumodu, Ighogboja and Okuonghae 1994). Furthermore, their findings on opinions of the women regarding the appropriate age for introduction of complementary food showed that only 4% of the mother believed that breast feeding should be supplemented for infants under 1 month of age. Also 44% of the women suggested 1 to 3 months as the best age for introducing complementary feeding while about 28% believed that breast-feeding should remain un-complemented for as long as 9 months. In marked contrast to their expressed beliefs, 43% of these mothers actually introduced foods to their infants before 1 month and as many as 81% used complimentary foods for infants from birth to 3 months. Only about 2% of the women waited until their infants were 6 months and older before initiating complementary feeding, an observation markedly different from their expressed opinion.

Furthermore, Soysa (1992) observed in their study, that faltering growth may be observed around the fourth month in urban and earlier in rural areas of Sri-Lanka. This relates to the late supplementary feeding as mothers were reluctant to feed earlier because of traditional rice eating ceremony around the end of the year or until teeth have erupted. In Maharashtra and Gujarat areas of India, the mean age of the children at which supplementary foods were introduced was generally between eight and ten months. Regardless of the mean age, quite a few of the children did not begin to receive supplementary foods until after twelve months of age. This was especially noticeable in Maharashtra where at least half the children received only breast milk until they were one year old. Such a practice of delayed weaning together with frequent infections could be responsible for the growth faltering that has been reported in children from many developing countries. (Subar, Krieb-Smith and Kahle 1998).

## Problems that may arise during the weaning period

At the age of six months and above when the child's birth weight is expected to have doubled, breast milk is no longer sufficient to meet the nutritional needs of the growing infants. Nutritious weaning foods are introduced which typically covers the period from the six to twenty four months of age in most developing countries (WHO/OMS 2000). Due to the reduced consumption of breast milk, important nutrients such as proteins, zinc, iron and B- vitamins are likely to be deficient in the contemporary diets of the affected infants (La Leche 2002, Mariam 2005).

Huffman, Chowdhury, Chekraborty and Simpson, (1994) categorized problems during the weaning process into two broad categories, 1) poor diets and 2) detrimental feeding practices. Those problems that fall under the poor diets include:

- i) inadequate caloric, ii) inadequate protein, iii) inadequate micronutrients.

### Inadequate caloric

Current WHO recommendations suggest that infants, age 6-8 months should receive at least 200 kcal/day from complementary foods. For 9-11 months- olds, energy from complementary foods should be 300kcal/day, and for 12-23 months- olds 550 kcal/day. These guidelines are based on children receiving average amounts of breast milk. If infants and young children consume more or less breast milk than average, their requirements from complementary foods will differ accordingly. (PAHO/WHO 2003).

However, many studies from developing countries reported low caloric intake in young children. In the Gambia, caloric intake for 12 months old infants was about 80kcal/kg with breast milk providing a major proportion of these calories (Prentice 1990). Brown and Zeitlin (1991) found that Bangladeshi children, ages 9 - 18 months (average of 13 months) were consuming only 65kcal/kg with breast milk making up more than three to fourth of total calories. The total amount of food consumed by infants in Bangladesh is slightly less, implying that the calories, fat and protein are markedly reduced.

In many cases, insufficient caloric intake is due to low caloric density of complementary foods. Poorly nourished children often consume similar amounts (grams) of food as well nourished children but their caloric intake is substantially less. In developing countries, starchy, staples prepared for weaning porridges become highly viscous when

cooked. Consequently, large quantities of water are typically added to make the consistency appropriate for small children. As a result the energy and nutrient concentration is greatly reduced. Due to their small stomach sizes, infants and young children cannot consume sufficient quantities to satisfy their nutritional requirements.

### Inadequate protein

Inadequate protein content is another problem of many weaning diets in developing countries. National Research Council recommended protein intake of 1.6gm/kg body weight for 6 months to 1 year old and 1.2gm/kg for children ages 1-3 years. (Brown, Dewey and Allen 1998; Dewey and Brown 2003). In a report by National Center for Health Statistics (1993), which showed that during the second half of infancy, a child with average weight for age needs 14gms of high quality protein. For 1 - 3 years old, the protein requirement is 16gm per day. A study in Bangladeshi found that protein consumption was only 8.2grams per day or 53% of requirements for children ages 9-18 months. This low protein consumption level was due to very inadequate caloric intakes (Zentlin 1991). However, in Peru, among infants 10-12.5 months of age, protein intake averaged over 100% of requirement at 16gm/day (Creed de Karashiro 1990). Also, protein intakes in both Peru and Bangladeshi are substantially lower than those observed in the United States. In many cases, protein intake will be adequate if caloric intake is sufficient. However, in places where the weaning diet is highly dependent on starchy tubers, efforts must be made to add sources of protein to the diet (Schnitz 1997).

### Inadequate micronutrient content

Another characteristic of many weaning diets is inadequate micronutrient content. About 40 million pre-school children suffer from Vitamin A deficiency. It is estimated that adequate dietary intake of Vitamin A could prevent 23% of infant and young child death in developing countries (Sanghvi 1993). There are minimal quantities of other essential micronutrients such as Vitamin C, Iodine, Iron and Zinc in the diets of many children in developing countries. Absence of these micronutrients over an extended period can result in blindness, stunted growth, mental and physical handicaps, and reduced immunity to infections and death. There is evidence that Iron and Zinc deficiencies can result in anorexia

and decreased total dietary intake (Brown 1997). In a study of Protein energy malnutrition (P.E.M) and the nervous system in Nigeria, the report stated that the impact of P.E.M on the CNS is not determined by the deficiency of protein and energy alone but simultaneous deficiencies of micronutrient such as iron, iodine Vitamin A, Vitamin B complex, folic acid, Zinc and docosahexaenoic acid also have a large role to play (Kapril and Bhavna 2002; Odebode et al 2005).

In the United State, diets of young children generally contain adequate amounts of micronutrients whereas in developing countries, weaning diets frequently lack both variety and animal products. Breast milk is an important source of Vitamin A. Studies in Bangladeshi report that breast milk contributed nearly half of the protein intake and 60% of daily energy and Vitamin A intake in the diet of children over two years of age (Brown et al 1997). In another study in Bangladeshi, of over 2,500 children between the ages of 6 months and 3 years, the risk of Vitamin A deficiency among breast fed children was reduced by 74% (Mahalanabis 1991).

Studies in Mexico have examined the micronutrient content in the diets of young children ages 18 - 30 months. Although the mean energy and a protein intake (per kilo body weight) were adequate, only 7% of protein intake was from animal sources. The low intake of animal products was associated with inadequate consumption of several microoutrients including Vitaatin A, and B<sub>12</sub>, Zinc and Iron. Malnutrition (Stunting or low height for age) was common among young children, in these areas studied (Allen 1991).

**Poor feeding practices**

The poor feeding practices, which can otherwise be referred to as detrimental practices include improper timing of the introduction of complementary foods, infrequent feedings, inappropriate, feeding methods and childcare practices and unhygienic ways of handling and preparing food.

**Improper timing of the introduction of complementary foods**

**Early introduction**

Breast milk is the complete, perfect food for infants during the first 6 months of life, yet breast milk is frequently replaced in early infancy with contaminated and nutritionally

inferior substitutes. Lack of exclusive breast-feeding is a significant cause of infection in early infancy and can result in malnutrition (Cunningham, Jelliffe and Jelliffe 1991, UNICEF 1999). Prelacteal feeds and early supplementation reduce breast milk production and introduce pathogens that greatly increase the risk of life-threatening diarrhea and other illness (WHO/OMS 2000). Prelacteal feeds results in the baby receiving insufficient breast milk and may lead to lactation failure, diarrhea and shortening duration of breast-feeding (Blomquist, Jonsbo and Persson 1994, Hossain, Yasmin and Kabir 1999). It is for this reasons that UNICEF/WHO discourage the use of prelacteal feeds unless medically recommended (WHO- UNICEF, 1990). Shamim (2006) his report of the effect of weaning period on nutritional status of children stated that it is well-established that early weaning can interfere with breast milk production and is unnecessary since breast milk caters for both the caloric and fluids requirements apart other micronutrients needed at that age.

In a study of the infant weaning practices of some Tiv women resident in Makurdi, Nigeria, it showed that all the mothers' breast-fed their infants and most introduced supplementary feed at 3 to 4 months (Igbedioh 1996). A similar study on the breastfeeding and weaning practices in rural Mexico confirmed that the introduction of solid foods was made at 1 month to 8 months of age. Foods ranged from beans, tortillas bread, pasta, fruit, chicken soup, flavored gelatin, to soft drinks. (Lipsky 2004). Fagbule and Olaosebikan 1992 also indicated in his study that 228 out of 516 mothers had commenced weaning by 3 months of age.

A study in an urban slum area of Lima, Peru documented the role of exclusive breast-feeding in preventing diarrhea morbidity. Infants under five months of age who received breast milk plus other non-milk liquids had a two times greater risk of diarrhea than exclusively breast fed infants. Non-breast fed infants exhibited the highest rates of diarrhea (Brown 1991).

### Delayed introduction

The consequences of late weaning include inadequate intake of energy, proteins and micronutrient, that results in growth faltering and compromised micronutrient status ( Sarvar 2002, Shamim et al 2006). Also, late weaning can result in defiance in eating

behavior, such as inability to masticate food and refusal to eat and that can also compromise the nutritional status (Anita, Singh, Rasania, and Mehra 2003). In Sudan, not even one fourth of infants received complementary foods in addition to breast milk by the age of 9 months. Around 45% of mothers waited until the child's second year of life to give complementary foods on a regular basis (El Bushra, Salih, Satti, and Kamii 1994). Furthermore, in their study of feeding practices in Bangladesh, Brown *et al* (1991) observed that mothers did not actively encourage their children to eat complementary foods until around 18 months. This is due to mother's beliefs that introducing food at an earlier age would cause stomach problems. This delay can result in growth faltering and may mute the learning experience provided from exposure to new tastes and textures of foods (Underwood 1992). In a feeding program, in Thailand, infants with insufficient growth did not increase their food intake even when they were offered adequate food. Underwood attributes this behavior to the mother's failure to encourage early acceptance of various foods.

### **Infrequent feedings**

Another problem during weaning process and which can affect a child's nutritional status is feeding frequency. Given their small stomach sizes, young children need to be fed frequently during the day to ensure adequate food consumption (Gibbons 1984). In many developing countries, traditional weaning foods are neither calorically dense nor served even three times per day.

### **Inappropriate feeding methods and child care practices**

Besides breast-feeding, bottle-feeding and the use of cups and spoons, force hand feeding is another mode of feeding commonly practiced by the nursing mothers in most developing countries. Foods like fermented paps, other gruels, tea and local herbs and water are mostly administered through this process. Forced hand feeding is mostly practiced when a child is sick and refuses to eat or drink as expected. Nursing mothers therefore use a hand to inhibit the breathing process through the nose thereby forcing such a child to swallow whatever is put in the mouth. Though, this practice is declining of late because of the inherent danger of suffocation, yet recent studies still revealed that the practice is still in use in some developing countries of the world. A survey research and behavioral observations in

Kwara State, Nigeria revealed that hand feeding was the most common feeding technique for children under 24 months. "Forced hand feeding tended to be more common among the children suffering from diarrhea (Brown *et al* 1998).

### Contaminated weaning food

Children in West Africa are at high risk of infection during weaning. Malnutrition increases susceptibility to infectious diseases and affects child mortality from diseases such as diarrhea, whooping cough, and acute respiratory infection (Scrimshaw, Taylor and Gordon 1998; Onofriok 1992). It reduces the capacity of the host to resist the consequences of such infection, making death inevitable for some. As solid foods are introduced, infection with germs that cause diarrhea or other diseases is more likely to occur (WHO/UNICEF 1994). Rural and poor urban mothers often contaminate the food because of poor handling, use of dirty water and utensils, and poor storage. The story is similar for working mother, who leave infants in the care of maids who are usually ignorant and inexperienced and sometimes very unhygienic. Because of its poor nutritional status, the infants can hardly resist these infections. The frequent occurrence of such infections leads to malnutrition because of increased energy and nutrient requirements coupled with poor absorptive capacity. This in turn affects the nutritional status of the child and further lowers resistance to infection. (Onofriok 1992). According to the available statistics from Nigeria, 93 % of these deaths are under-five years of age, 70 % of which are attributed to preventable diseases. (Administrative Committee on Coordination/ Sub-committee on Nutrition of the United Nations (ACC/SCN) 1992).

Numerous studies have also shown that weaning foods prepared under unhygienic conditions are frequently heavily contaminated with pathogenic agents and are a major risk factor in the transmission of diseases especially diarrhea diseases. For example, Black, Siegel and Bentley (2001) in Bangladesh showed that 41% of samples of food items fed to children of weaning age contained E.coli. Milk and foods prepared separately for infants were more frequently and heavily contaminated with E.coli than foods prepared for adults such as boiled rice. The level of contamination was related to the storage of weaning foods at high ambient temperature.

## Improper food handling

The sources of food contamination are numerous; polluted water, flies, pests, domestic animals, unclean utensils and pots, dirty hands and a polluted environment caused by lack of sanitation, domestic animals, droppings, dust and dirt etc. Raw foods themselves are frequently the source of contaminants since some foodstuffs may naturally harbour pathogenic agents or have been obtained from infected animals.

Touching food with contaminated hands has been the cause of many outbreaks of food borne diseases. For those pathogens that have a low minimum infective dose and for which the human body is the main reservoir e.g. *shigella* spp., contaminated hands are particularly important risk factor. There are more likely to be multiple cases of cholera in families or households if the index case is a woman or a food handler. In one cholera outbreak in Guinea, the contaminated rice-based meal responsible was prepared by a person who had cleaned the bed sheets and washed the body of a cholera victim, including evacuating the victim's bowel contents with enemas. Nevertheless, the washing of hands after defecation or changing infants' nappies and prior to the preparation of food is frequently neglected or ignored. Biyan (1992) observed that mothers did not always wash their hands after changing babies' nappies and when they did, it was often in the same pan of water used to prepare food and wash utensils. Also, in Lagos, it was noted that, out of 265 Cooks only 43 washed their hands before preparing a meal (in the presence of an observer); had no observer been present, the number would probably have been lower (Abidoye 2000).

Contamination of weaning foods with faecal matter has been frequently reported, and lack of basic sanitation certainly is a contributing factor. Water used for the preparation of food itself is a source of pathogenic agents. In addition to the above-mentioned sources there is also the imminent risk of cross-contamination during food handling. This can occur either by the direct contact between raw and cooked foods or indirectly through insects, rodents, contaminated hands, surfaces or utensils (WHO 1993).

## Weaning age: a critical period

The introduction of weaning foods is often accompanied by stress and ill health for infants in developing countries, mostly because the foods are not properly tailored to the infant needs (Pipes 1993, Kikafunda 2003). Many traditional weaning foods in Africa are



only a slight modification of adult foods involving only mashing and dilution without taking into consideration the special nutritional requirements of young children (Kakitachi 1991, Uwaegbute 1999). Adult diet, especially in developing countries, consists of highly starchy staples which are bulky and unless properly modified, unsuitable for infants and young children with their small gastric capacities (Mosha 1998). During the weaning feeding period, children require foods that are soft, hygienic and energy- and nutrient-dense to meet their high nutritional requirements (Cameron 1983, WHO 2000).

Moreover, foods in developing countries are usually prepared under unhygienic conditions using water from unprotected sources thus exposing the child to diarrhea. This presents a dilemma to both mother and infant; to wean or not to wean, which is termed weaning's dilemma (Rowland 1986). Therefore, exactly when to wean and what to wean with is a subject that has preoccupied mothers and scientists alike for a long time.

In Nigeria, weaning was also identified to be a crucial growth period that needs to be handled properly to avoid under-nutrition (Nigeria Nutrition Network (NNN) 2000). For instance, the first Nigeria Nutrition Network (2002) identified poor feeding practices and / or shortfall in food intake, as the most important direct factors responsible for malnutrition and illness amongst children in Nigeria. As in most other developing countries, high cost of fortified nutritious weaning foods is always, if not prohibitive beyond the reach of most Nigerian families. Such families often depend on inadequately processed traditional foods consisting mainly of un-supplemented cereal porridges made from maize, sorghum and millet (Kikafunda 2003).

Many studies report that the incidence of diarrhea diseases is especially high after weaning is initiated. In a study of infants and children in a Guatemalan Mayan village, Mata et al (1994) noted that the prevalence of many infectious diseases increased during the weaning period. Particularly, diarrhea diseases were extremely high during the weaning period (6 - 24 months) and that infectious diseases were an important cause of weight loss, arrested height and impaired physical growth. Rowland (1986) reported that there is particularly high incidence of diarrhea diseases between 7 and 18 months with a peak at 9 months of age. Similarly, Block et al (2001) found that the prevalence of diarrhea was highest during the second 6 months of life.

## Foodborne pathogens

Infants and young children are very susceptible to food borne disease and if they consume contaminated foods, are likely to contract infections or intoxications leading to illness and often death. Either chemical or biological agents may cause Foodborne diseases but the ones of biological origin are of special interest, since they are responsible for a considerable proportion of diarrhea diseases. However, it should be noted that infants and children also are sensitive to various chemical contaminants of foodstuffs e.g. lead. And, such contamination is a major public health concern in several countries (FAO/WHO 1998).

Infections due to pathogenic *E.coli* are probably the commonest illnesses in developing countries and produce up to 25% of all diarrhea episodes. Transmission of *E.coli* has been specifically associated with weaning foods (WHO 1983). Cholera remains an important cause of morbidity and mortality in many developing countries, mainly in Asia, Africa and recently, South America. Rotavirus is commoner in children aged 6-24 months and is responsible for 20% of all diarrhea death among under 5 year olds; the virus is of concern in both developing and industrialized countries. Amoebiasis, ascariasis, etc are among the commonly occurring food borne parasitic infections. Amoebiasis is one of the commonest parasitic intestinal diseases that can be fatal. Also, a high prevalence of amoebiasis has been reported among children of weaning age.

Furthermore, many studies have also demonstrated that infections may induce growth altering during the weaning period. A study of the population of a Guatemalan village also revealed that the incidences of infectious diseases, particularly diarrhea diseases, were extremely high during the weaning period (6-24 months) and that infectious diseases were an important cause of weight loss, arrested high and impaired physical growth. Many investigations indicate that of all the common childhood illnesses, only diarrhea diseases have a significant negative effect on growth. Studies by Martorell (1995) in Guatemala suggest that children who suffered from diarrhea for a short period exhibited a substantially greater increase on length and weight than children who were ill with diarrhea for a longer period.

Nutritional deficiency diseases, such as protein energy malnutrition, Iron-deficiency anemia and Vitamin A deficiency, have been reported in connection with food borne parasitic infections such as ascariasis. For-example, in a study of a 14-month old boy in

Guatemala, it was noted that the child exhibited normal growth until weaning (which started at 6 months of age). Introduction of semi-solid foods at that time was accompanied by bouts of diarrhea and reduced growth rate. When he received treatment, the child was found to have edematous protein-energy malnutrition (kwashiorkor) and to be infected with worms (Tanorell, Khan and Grummer-Strawn 1998).

## CONCEPTUAL FRAMEWORK

Although social and behavioral science theories are claimed to be able to contribute greatly to the effectiveness of health education programs, 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 (Hochbaum 1992).

For the purpose of this study, PRECEDE MODEL invented by Green *et al* (1999) will be used. This model is a diagnostic model (otherwise known as the antecedent model) that can be used in classifying health-related behaviors of people. This model can therefore be used to classify the behavioral patterns of the nursing mothers in Ibadan North West concerning their children weaning practices. Factors influencing health behaviors that are modifiable by educational intervention are broadly divided into three categories.

*These factors are: -*

- (i) Predisposing factors
- (ii) Enabling factors
- (iii) Reinforcing factors

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

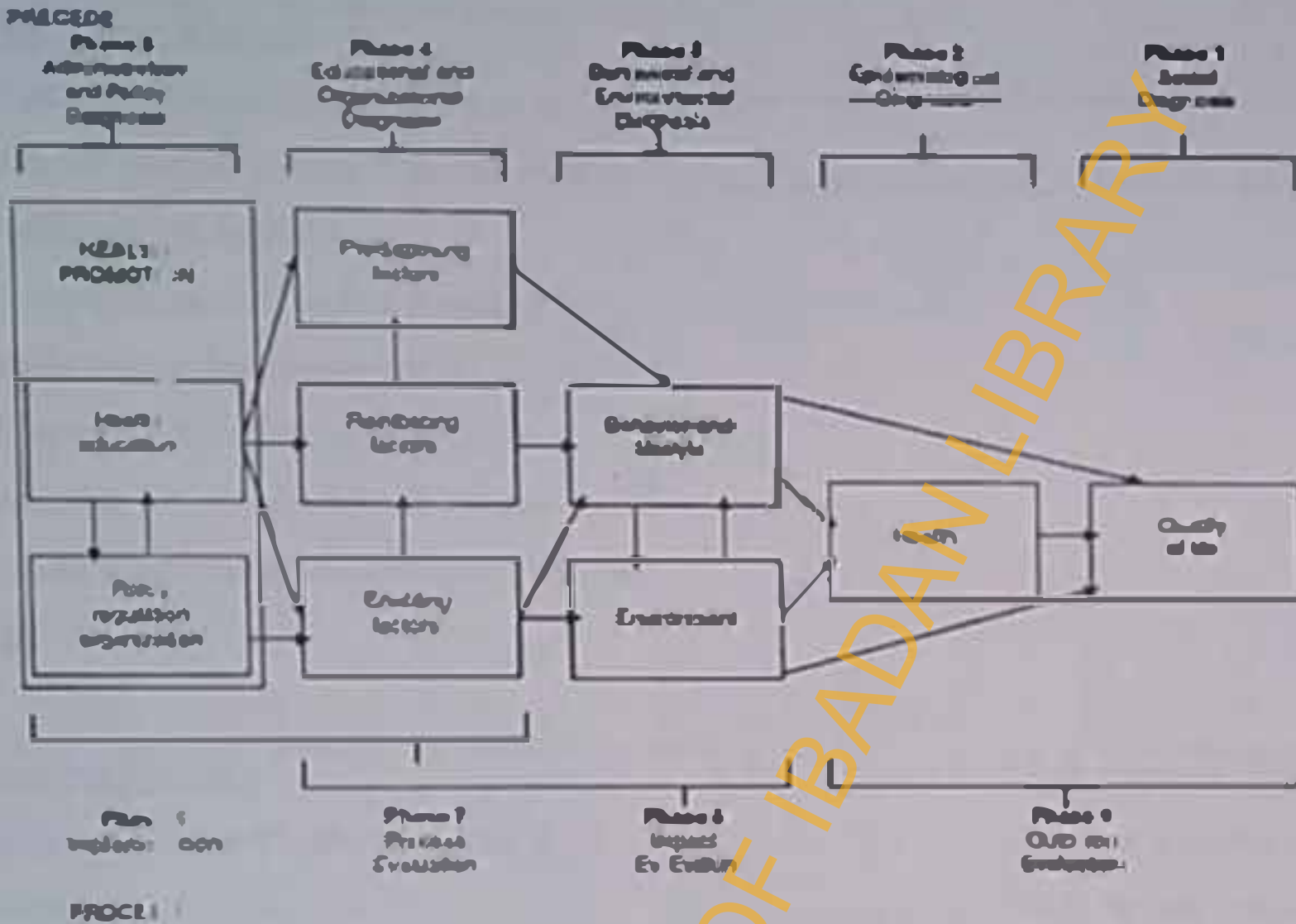
Predisposing factors include knowledge, attitudes, perceptions, beliefs and values. Predisposing factors are characterized by motivational forces prior to the action. Such predisposing factors as related to this study include mother's knowledge about when (i.e. the appropriate age to introduce complementary foods), what (i.e. that type of complementary

food 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, change 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 weaning practices. Enabling factors in this study are, money to buy the 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 behavior of the health professional, family members especially the husband, friends and neighbors. In this study, such factors include extent of information about weaning foods and practices 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 given in the clinic. There are also the attitude or behavior of in-laws and neighbors which may or may not be helpful.

FIGURE 1 : PRECEDE MODEL



Source : Green and Kreuter, 1999.

**FIGURE 2: The PRECEDE MODEL adapted to the Weaning Practices of the mothers**

**EDUCATIONAL DIAGNOSIS**

Predisposing Factors

- Mother's knowledge-about when to introduce, what and how to introduce the complementary foods
- Beliefs about the kind of foods to introduce complementary foods
- Maternal education in relation to knowledge i.e. reason why should certain foods be given (or should not be given) to a child.

Enabling Factors

- Time available for the preparation of child's food
- Nature of the mother's occupation that may disallow her from taking adequate care of the child's food.
- Skills – nutrition educational training received from the health clinics

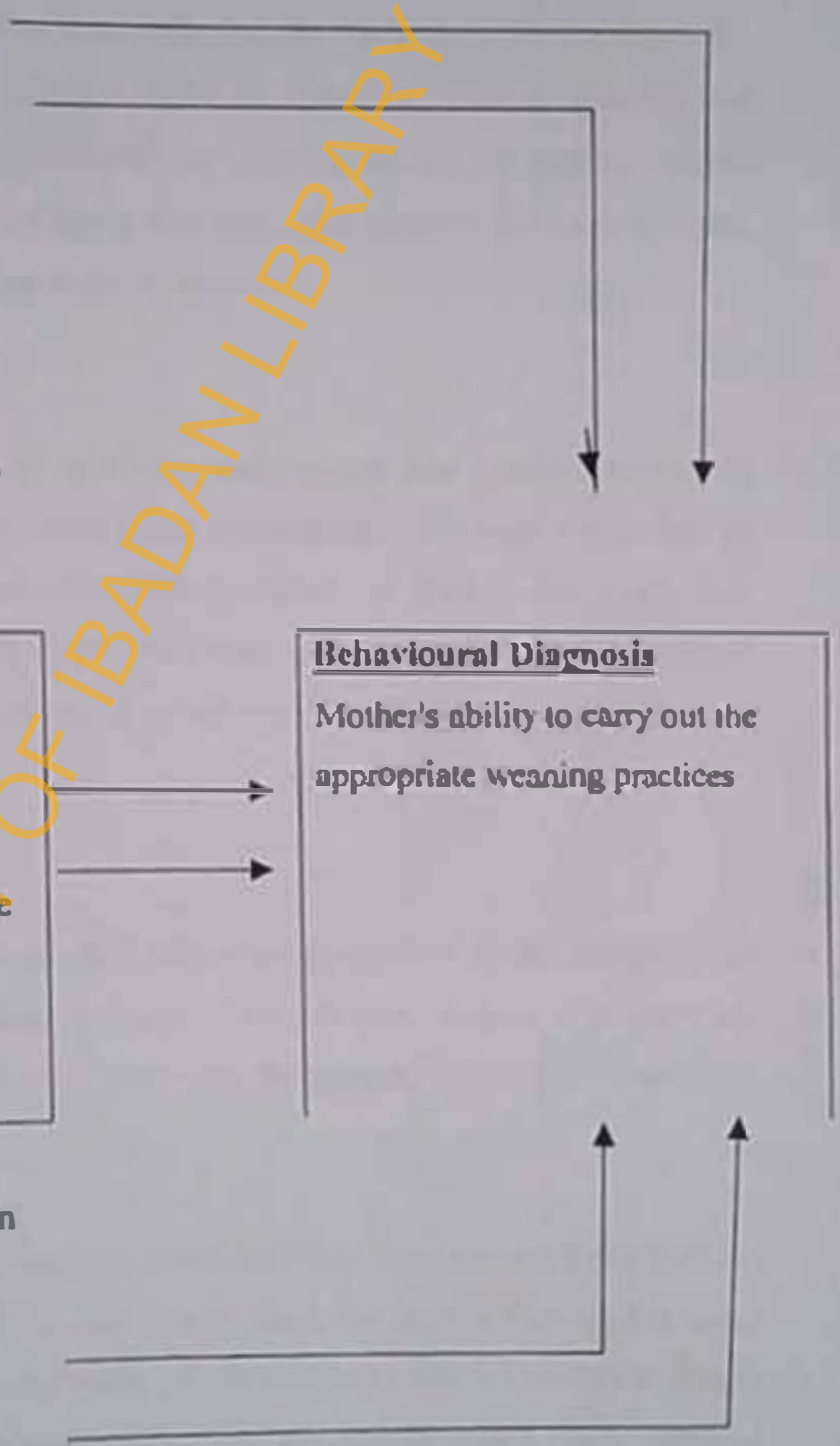
Reinforcing Factors

- Health workers-extent of the information given in the clinic
- Husband's support as well as the other family members (In-laws)
- Friends or neighbors (the kind of information given)

Behavioural Diagnosis

Mother's ability to carry out the appropriate weaning practices

• Adapted from Green and Kreuter (1999)



## CHAPTER THREE

### METHODOLOGY

This chapter starts with a concise description of the study area. This is followed by the study design, scope and study variables. Other components of the chapter include the sample size and sampling procedure; methods and instruments for the data collection; validity and reliability of the study instruments; data collection process, data management and analysis. This chapter ends with limitations of the study.

#### Description of the Study Area:

Ibadan consists of a number of relatively independent and autonomous Local Governments, which generally do not have many interactions with each other. Ibadan North West is one of the five Urban Local Government of Ibadan that came into existence in August 1991. The Ibadan North West was carved out of Ibadan Municipal Government (IMG). Ibadan contains eleven Local Government Areas (LGAs) (five urban and six rural).

#### Physical Characteristics

Ibadan North –West local Government (LG) is the smallest of all the eleven LGAs in Ibadan. And, it occupies 1% of the total land area of the metropolitan area. It contains one of the water works-the Eleyele water works, army and police barracks and a golf course.

#### (a) Physical Infrastructure

There are 3 categories of roads that run across the Local Government (LG): Federal, State and Local Government roads. The only federal road that passes through the Local Government (LG) is that portion from Ekotedo junction (near Queen's Cinema) to Dugbe intersection; this is followed by State roads, which include among others Army Barracks road, Dugbe-Eleyele and Olona Motors road and Ayeye-Idikan-Feleye road. The last category constitutes the longest length, since all other residential access roads fall under it.

(b) *Water Supply*

The residents of the Local Government (LG) depend on the municipal water system from the water corporation of Oyo State (WCOS) and on wells. Some parts of the Local Government (notably Eleyele, Jericho and Idi-Ishin) get their water supply from the Eleyele water works while the remaining areas depend on the Asejire water dam located along the Ibadan-Ife road for their water supply. The water supply from the Water Corporation is erratic, so people have to depend more often on wells for water.

(c) *Housing*

There are 3 types of housing in this Local Government (LG). The highly dense core areas have poor quality housing while the housing in moderately dense area is of fair quality. Those in the least dense areas have good quality. These latter areas are in the Government Reservation Areas in Jericho and Onireke. In general, the poor quality houses have inadequate or no infrastructure and sanitation facilities. In some cases, the population in these areas does not have access to any of the basic services.

(d) *Land Use*

The total Land area of the Local Government (L.G) as given by the survey Department of the Oyo State Ministry of Lands, Housing and Physical Planning is 31.38km<sup>2</sup> out of this, residential land use takes the largest share of about 60% which is 18.83km<sup>2</sup>.

The residential areas in the Local Government (LG) can be classified into 2 densities, namely high and low densities. A high-density area is a densely populated residential neighborhood, which has as many as four or more dwelling units per plot of land. On the other hand, a low-density area is a sparsely populated neighborhood having as low as one dwelling unit on a plot of land. The low-density neighborhoods are found in Jericho, Onireke Government Reservation Areas (GRAs) and Idi-Ishin. These latter places are well planned with infra-structural facilities and services while the high-density residential areas are not well planned. Such as found in both the core areas and the newly developed parts of the Local Government. These include Agbeni, Idikan, Oke-pade, Eleyele, Arometa and Ijokodo to mention a few.



The commercial activities in the Local Government (LG) take place mainly on Agbeni, Ogunpa and Dugbe markets. These account for 3% of the total land area. Commercial activities also take place along the major roads in the Local Government (LG).

*(e) Health Facilities*

There are a total of 13 health facilities owned by the Local Government (LG) located in various parts of the Local government. They range from health centers to dispensaries, primary health care centers to state supported health centers. Besides the public health facilities, there are also about 23 private clinics/hospitals in the Local Government (LG). The services available in these facilities include primary health care such as immunization, distribution of oral re-hydration therapy (ORT), growth monitoring, health education, nutrition and family planning services.

The five common diseases of children are malaria, diarrhea and broncho-pneumonia, anemia and tetanus. The major causes of death in children under five years old also include anemia and tetanus.

*(f) Population and Population Density*

The total population of Ibadan North West Local Government Area was estimated to be 223,331 in 2006 using the Nigeria population growth rate of 2.4% quoted in the World Fact Book (World Fact Year 2007). The population of the Local Government accounted for 8% of the total population of Ibadan region (i.e. the eleven local governments). The female proportion was 50.6% (86,938) while the male proportion was 49.4% (84,854). The population of children under one year old is 6,872 while those under five years old is 34,359. The population of women in reproductive age is 37,794.

The population density of the Local Government is about 4,677 persons per km<sup>2</sup>. The core residential quarters of the Local Government (LG) account for the highest population density. This is followed by the newly developed high-density residential quarters such as Ejeyele and Arumeta. The Jericho and Onireke and low-density areas of Idi-Ishin are sparsely populated.

The Local Government (LG) comprises of 10 political wards with the headquarters at Oorok (Table 1).

**Table 1: Wards in Ibadan North-West Local Government**

<i>Ward No</i>	<i>Ward Name</i>
NW1	Bere/Ayeye
NW2	Oopoyeosa
NW3	Agbeni/Ogunpa
NW4	Idikan
NW5	Olorisaoko
NW6	Abebi
NW7	Ekotedo
NW8	Inalende
NW9	Jencha/Onireke
NW10	Elcycle

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## Study design and scope

The study utilized the descriptive cross-sectional design.

This study is limited in scope to the weaning practices among the nursing mothers whose children aged 6 months -24 months in Ibadan North-West Local Government Area.

## Study Variables

The categories of variable considered in this study are:-

- (i) Dependent Variables - Weaning Practices adopted by the nursing mothers
- (ii) Intermediate variables-Knowledge, Attitude, Perception, and belief of the nursing mothers on their weaning practices.
- (iii) Independent variable- Socio- demographic characteristics of the mothers such as age, marital status educational levels, and occupation.

## Sampling procedures and sample size

A combination of multistage, stratified and simple random sampling techniques were used. Firstly, applying the delineation of local government by National Electoral Commission (NEC 1996). The ten wards in the local government area were grouped into two residential areas. Nine wards fall under the high-density residential areas while one ward falls under the low-density residential area. Those nine wards that fall under high-density residential area include NW1, NW2, NW3, NW4, NW5, NW6, NW7, NW8, and NW10. However, the low-density residential area has only one ward, which is NW9.

Secondly, simple balloting was used to select 50% of ward from the high-density groupings while the only one in low density was purposely selected. By using a simple random method, four wards out of the nine wards in the high-density residential areas were chosen. Those four selected wards were Ayeye/Bere [NW1]; Orirew/Ijukan [NW4], Olorisooko [NW5]; Abebi [NW6] and Onireke/Jericho [NW9].

Thirdly, each of the selected wards in the high-density area was then broken down into the compound clusters while that of low density area was broken down into street clusters and 50% of the compounds were randomly selected in the high density area while and 50% of streets from the low-density ward were randomly selected by balloting. The list of the selected compounds in each ward was gathered from the ward councillors in the local

government secretariat and all the houses in each selected compound and streets where there were nursing mothers with children of ages 6-24 months were selected. In houses where the nursing mothers were more than two, only one nursing mother was selected by balloting. A total of five hundred (500) nursing mothers were interviewed.

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**Table 2: Name of the Compounds chosen in the four selected Words of the High-density residential areas.**

<i>NIV1 (Bere/Ayeye)</i>	<i>NIV4 Idikan</i>	<i>NIV5 Olorisaoko</i>	<i>NIV6 Abebi</i>
Aragba	Ota	Onimalu	Faloo
Patako	Babajide	Adenase	Ogbonkoko
Ayegun	Olorunsogo	Elekuru	Ladapo
Laniba	Akanyanmi	Adegbolu	Amumeji
Orankan	Laogun	Akande	Lakanlu
Alekuso	Kanmodi	Ogcroju	Elegun
Araba	Sulu	Eye	Oyedija
Olajumoke	Banigbola	Ayisa	Asodele
Idi-Omo	Pegba	Osunde	Ayibiowu
Asia-Lele	Okiribiti	Agbo	Abudu
Raji	Ajobiewe	Adegun	Adeyemo Owonbuwo
Ado	Adebisi	Kangun	Adcojo
Adeleye	Alagbode	Ake	
Ayilegbe	Agunlofi	Ojuoye	
Asinkuna	Epo	Lamini	
	Ijometa	Wajawaja	
	Ibikunle	Apaoyin	
	Agoro	Daolu	
	Awonigbagbe	Olokun	
	Olaboopo	Onikolobo	
	Orugele		
	Akeka		
	Balogun		
	Ajole		

Name of the streets chosen in the only ward of the low-density residential area (Ward 9)

Location/Onireke included.

- Shalom Nursery & primary school avenue.
- Ayomide Street.
- Oke-Aanu Area.
- Onireke Layout, Nestle Area.
- Reservation Area.
- Oba Akenzua Avenue
- Link Road.
- Stone Road.
- Magazine Road.
- Oke-race Area off Ayorinde.

#### Methods and Instrument for Data Collection

Two methods of data collection were used. The first consisted of the qualitative method, which is the focus group discussion while the second comprised of the quantitative using questionnaire.

#### *Design of the Instruments*

Two instruments; questionnaire and focus group discussion (FGD) guide were used to collect information on the weaning practices among the nursing mothers.

#### *The Focus Group Discussion (FGD) Guide*

The FGD guide was developed based on literature review and consultation with researchers who had conducted similar studies. Open-ended questions were framed. The questions addressed issues relating to knowledge, attitudes, and practices of the nursing mothers' weaning practices. This qualitative approach helped to collect in depth information on the weaning practices among the nursing mothers. The information obtained was used to modify the draft questionnaire for quantitative data.

## *The Questionnaire*

This was the second instrument used for the data collection from the nursing mothers. The idea is to quantify some of the themes that emerged during focus group discussion. The questionnaire consisted of twenty-six questions, which were divided into the following sections.

Section A: socio-demographic characteristics of the respondents

Section B: respondents' weaning practices.

Section C: respondents' level of knowledge about weaning

Section D: respondents' attitudes to certain weaning foods.

Section E: general comments on weaning.

### *Validity and Reliability.*

Validity is the extent to which an instrument actually measures what it suppose to measure while reliability is the degree to which an instrument yield constant responses (Davitz & Davitz, 1997). Steps taken to enhance the validity and reliability of the instruments are described in the sub-section as follows;

### *Review of Instruments*

To ensure validity, other experienced researchers from the department reviewed the instruments. The objectives of the study were reviewed along with the instruments.

### *Translation of Questionnaire and Discussion Guide*

The questions in the guide were first drawn in English and later translated into Yoruba. The questionnaire too was translated into Yoruba Language by an expert and was back translated into English again by another person to ensure there was no information lost and also that the meaning of the questions were not distorted. The Yoruba translation is included in the appendices.

### *Training of Research Assistants*

Research assistants were trained for their specific roles for the FGDs and the interviews. Training lasted for three days and included roles plays. These allowed for on the

spot correction and clarification of issues.

### *Pre-testing of Instruments*

The FGD guide and questionnaire were pre-tested among the nursing mothers with children of ages 6-24 months in Adeoyo Maternity Hospital, Ayeye/Agbeni Maternity Centre in Ibadan North LGA and also in Oni and Sons Children Hospital in Ibadan South West LGA. Five (5) FGDs were conducted in all. Twenty questionnaires were also pre-tested at Bashorun Area (As low density residential area) and Oranyan Area (as high density residential area). Field-testing lasted for five days and each questionnaire took an average of thirty-five minutes to complete. At the end of the FGD exercise, questions that were not easily understood were re-framed or removed.

### *Data Collection Process*

#### **Focus group discussion (FGD)**

The FGDs were conducted by a team of three pre-trained female research assistants consisting of an ordinary National Diploma (OND) holder, who was designated as a moderator, an undergraduate student as a recorder and another undergraduate as an observer. They were all experienced in research works. Each FGD session had 8 participants.

The FGDs took place in the infant welfare/immunization clinic of the respective selected wards. Each FGDs lasted between 30-60 minutes and the exercise lasted for 5 days. Comments were transcribed and recorded on tape recorder. FGD guide used is included in the appendices.

#### **Selection of Samples for Focus Group Discussions (FGD)**

The FGDs were conducted in the remaining five wards that were not selected for the survey. The participants were nursing mothers with children of 6-24 months who came for infant welfare and immunization clinics. Those nursing mothers selected came from different wards. In all, there were forty (40) participants for the FGD sessions. Five (5) different FGD sessions were held where five (5) different groups of nursing mothers were involved. Two FGD groups of nursing mothers were used for the FGD pretest while three



groups of nursing mothers were used for the study.

The venue and time for the discussions were done at the respective immunization clinic. The number of the nursing mothers that constituted each FGD sessions was eight (8) and each session lasted between 30-60 minutes. In order to ensure that the instrument measured what they were intended to measure, they were drawn in English and then translated into Yoruba. The FGD sessions were conducted in both Yoruba and English languages to ensure that mothers were able to communicate in the language of choice in which they were most comfortable and also to ensure better understanding of their responses. The Yoruba version was used in the high density areas since it is language of choice commonly used by the indigenous mothers while the English version was used for those in the low density areas as requested by the mothers. All sessions were recorded on audiotapes with the permission of the participants.

### *Interviews*

Five female research assistants were employed and trained by the investigator to administer and fill the questionnaire. The interview was face to face and the nursing mothers were interviewed at their various homes.

Each research assistant together with the investigator completed an average of six questionnaires a day. In all, a period of three weeks was used to conduct the interviews. The investigator ensured that all questionnaires were answered, submitted and collected on daily basis. Detected, incomplete responses or omissions were promptly corrected in the field. Most of the interviews were conducted in the afternoons and evenings when the nursing mothers were back home from their respective working places.

### *Supervision*

The research assistants were supervised throughout the data collection exercise by the investigator and this gave room for the on-spot correction of mistakes.

### *Data Management and Analysis*

All FGD data obtained from the audiotape were transcribed and compared with ones written by the recorder, before drawing conclusions. Data obtained from the questionnaires

were sorted out manually. All open-ended questions were coded using the already developed coding scheme. The data was then entered into the computer using the software EPI-INFO (Version 6). Frequency distributed tables, means and percentage were analysed for descriptive purposes. Chi-square test of association was used to determine any significant statistical association between weaning practices and those variables identified in the stated hypothesis.

### Ethical Considerations

It is an established principle to obtain informed consents from all participants in health researches (Smith and Morrow, 1993). During the course of data collection, the research assistants greeted the people and introduced themselves as necessary. Informed consent to participate in the study was verbally sought and obtained from the participating nursing mothers. It was also made known to them that their participation in the study was voluntary. It was after they had agreed to participate in the study verbally that both FGD and administration of the questionnaire were done. The nature of the investigation was explained and confidentiality of all information collected was assured.

### Limitations

This study is not without some limitations. A common limitation of interviews is that investigator relies only on what the interviewees disclosed or reported. In this study, the freely expressed views or opinions by the respondents are just assumed to be honestly made.

This study focused on a sensitive topic, which reflects the economic, socio-demographic and educational status of the respondents and their husbands. Most nursing mothers hesitated to speak on these topics because of various reasons best known to them. Some mothers even wanted incentives before they could volunteer to give information as regards their children while some were of erroneous impression that the research assistants were tax officers. This was, however, overcome after explaining the purpose to the mothers and their husbands.

It was difficult to gather information from most mothers especially when just back from work. Most respondents who had been away from home almost throughout the day prefer to use their evening for rest and to prepare food for their families. Therefore, they felt

disturbed and uncomfortable to find time to attend to the interviewer, who had to be extra patient and repeat questions many times. This led to the extension of anticipated duration for the data collection.

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## CHAPTER FOUR

### RESULTS

This chapter presents the results related to the weaning practices among nursing mothers in Ibadan North West local Government of Oyo State. The survey results are in two broad categories:

- (a) demographic characteristics; and
- (b) Weaning practices among respondents.

#### Socio-demographic characteristics

A total of 500 mothers with children of ages 6-24 months participated in this study. The age distribution of the children whose mothers were interviewed ranged from 6-24 months with the mean age of 15 months. Most of the children 150 (30%) belonged to the age range of 6-9 months, followed by 129 (25.8%) children within 10-13 months and 108 (21.6%) children with the age ranges of 22-24 months. Age distribution of the respondents as seen in Table 3 showed that their ages ranged from 16-50 years with a mean of 26 years.

The educational status of the mothers as shown in Table 3 revealed that the largest number were those who had primary six education 224 (44.8%). Others attained secondary school education 128 (25.6%), Post secondary school education 85 (17%) which comprised of Technical College, Grade 2 Certificate, National college of education (NCE), Nursing, Polytechnic (OND/HND) and University education. Those with no formal education were 63 (12.6%).

Occupational distribution of the respondents showed that majority of the respondents were Petty Traders 310 (62%), while the other occupations indicated by the remaining mothers have very low percentages as shown in Table 3. Similarly, occupational distribution of the respondents' partners indicated that the highest number of their husbands were artisans 191 (38.2%); followed by Trading 120 (24%); and Civil Servant 101 (20.2%). Those categorized, as Artisans were drivers, mechanics, carpenters, bricklayers, electricians, fashion designers and interior decorators.

Table 3 Socio-demographic variables

Childrens' ages (in months)	Number	Percent
6-9	150	30
10-13	129	25.8
14-17	48	9.6
18-21	65	13
22-24	108	21.6
<b>Total</b>	<b>500</b>	<b>100</b>
<b>Mothers' ages</b>		
16-20	66	13.2
21-25	198	39.6
26-30	161	32.2
31-35	55	11
36-40	15	3
41-45	1	0.2
46-50	4	0.8
Primary six	224	44.8
Secondary school	128	25.6
Post-secondary school	85	17
<b>Total</b>	<b>500</b>	<b>100</b>
<b>Respondents' occupation</b>		
Housewife	40	8
Petty trading	310	62
Arisan	94	18.8
Civil servant/salary earner	48	9.6
Large scale business	8	1.6
<b>Total</b>	<b>500</b>	<b>100</b>
<b>Respondents' Husbands occupation</b>		
Trading	120	24
Arisan	191	38.2
Civil servant/salary earner	101	20.2
Large scale business	8	1.6
No idea/ No response	33	6.6
<b>Total</b>	<b>500</b>	<b>100</b>

## Respondents' Weaning Practices

### *Breast-feeding Practices*

Breast-feeding was found to be popularly practiced among the mothers. Out of the 500 mothers interviewed, 320 (64%) were still breast-feeding as the time of this study while the rest of the mothers 180(36%) had already stopped breast-feeding their children. However, the number of times per day in which mothers breastfeed their children varied. The number of those mothers who breast feed their children on demand was very high 284 (88.8%) compared to the other mothers who breastfeed at certain number of times as shown in Table 4. Those mothers who were still breastfeeding were further asked about how long they intend to breast feed their babies, 112 (35%) intend to breast feed for duration of 16-19 months. 111 (34.7%) for more than 24 months. Very few of the mothers indicated their intention to breast feed for as long as 20- 23 months while some mothers (5%) gave no response as shown in Table 5.

Specifically, those mothers who had already stopped breastfeeding as at the time of this study were asked to state the ages of their children when they terminated breastfeeding. Their responses (Table 6)) indicated that 100 (55.5%) mothers had stopped breast-feeding their children between the ages of 12-15 months, a small proportion of the children 11 (6.1%) were removed from breast quite early (before 1 year) while only 10 (5.6%) of children were weaned totally off breast milk after 19 months.

The reasons given by these respondents for termination of breast-feeding varied. The most common reasons given by the respondents 127 (70.6%) were because they felt that child was matured enough to be introduced to complementary foods and to get the child accustomed to eating other foods besides breast milk. Other reasons given were child refusal to suck breast milk 29 (16.1%); nature of the mother's job 9 (5%) and preparation to have another child. 15 (8.3%) Table 7.

**TABLE 4: Number of Times Respondents Breastfeed Per Day**

No of times mothers breast-feed per day	Frequency	%
Less than 5 times	2	0.6
5-10 times	24	7.5
11-15 times	10	3.1
On demand	284	88.8
<b>TOTAL</b>	<b>320</b>	<b>100</b>

**Table 5: Duration of Time Respondents Intend To Breastfeed**

Duration of times mothers intend to breast-feed	Frequency	%
12-15 months	53	16.6
16-19 months	112	35
20-23 months	28	8.4
24 & Above	111	34.7
No Response	16	5
<b>TOTAL</b>	<b>320</b>	<b>100</b>

**Table 6: Ages of Children at Termination of Breastfeeding**

Ages of children when terminated from breast feeding	Frequency	%
Less than 12 months	11	6.1
12-15 months	100	55.5
16-19 months	59	32.8
Above 19 months	10	5.6
<b>Total</b>	<b>180</b>	<b>100</b>

**Table 7: Mothers' Reasons for Termination of Breastfeeding**

Mothers' reasons for termination of breast feeding	Number	%
Child matured to be introduced to complementary foods to get child accustomed to eating other foods	127	70.6
Refusal of breast milk by the child	29	16.1
Preparation to have another child	15	8.3
Nature of mother's job	9	5
<b>Total</b>	<b>180</b>	<b>100</b>

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### *Age of Introduction of weaning foods*

All the mothers in this study had started the weaning process, in that their children had been introduced to foods other than breast milk. A very small proportion of the mothers 113 (22.4%) started the weaning process at exactly 6 months. However, more than half of the mothers 299 (59.8%) started weaning process before 6 months while only 79 (15.8%) introduced to their babies weaning foods after 6 months of age Table 8.

Respondents were asked the reasons for introducing weaning foods to their children. A greater proportion of the respondents 338 (68.4%) introduced weaning foods because breast milk alone cannot satisfy their babies as they cry too often. Other reasons given by the mothers are shown in Table 9.

Mothers were asked to name the weaning foods first introduced to their children, 326(65.2%) of the mothers commenced the weaning process with maize-based foods only such pap, amala/eba foofoo with only stew or boiled rice only (Table 10).

Out of all these foods mentioned, pap made from maize or millet guinea corn was the most popularly mentioned by the mothers in this study. Thereafter, commercial weaning foods became the next popular weaning foods introduced by the mothers 85 (17%). Various commercial weaning foods mentioned by the mothers include *Frisolac with iron, SMA, Nan, Cow & Gate, Jerry* to mention a few as well as baby supplements such as *Nutrend, Golden Morn, Corn flakes, custard, and babeena*. However, only a very small proportion of the mothers 55 (11%) gave Legumes and / or animal products, which were boiled egg, boiled fish, powdered cow milk, soybeans, beans and its products. Other foods which was barely given by the mothers were fruits and vegetables as shown in Table 11.

Various reasons were given by the respondents for introducing weaning foods to their children. A large proportion of the respondents 233 [44.6%] stated that baby cries too often since breast milk alone cannot satisfy them. Other reasons included; ability to have healthy and strong child 156(31.2%); to get child accustomed to eating weaning foods 57[11.4%]; breast milk and commercial weaning foods could no longer satisfy the babies 49 [9.8%] and advice given by the health workers 15[3%] as shown in Table 12.

**Table 8: Children's Ages At Introduction to the Weaning Foods**

Children's ages when weaning foods were introduced	No	%
Before 6months	299	59.8
6months	113	22.4
Above 6months	79	15.8
No response	9	1.8
<b>TOTAL</b>	<b>500</b>	<b>100</b>

**Table 9: Mother's Reasons For Introducing Weaning Foods**

Mothers' reasons for introducing weaning foods	No	%
Breast milk alone cannot satisfy babies as they cry too often	338	68.4
Baby is old enough to be commenced on other foods/To get child accustomed to eating other foods	70	14
Pressure from family/Neighbors & Friends	35	7
No response	30	6
Hospital workers' advice	19	3.8
Preparation to have another child	4	0.8
<b>TOTAL</b>	<b>500</b>	<b>100</b>

**Table 10: Types of Weaning Foods First Introduced to Children.**

Weaning foods given by mothers	Number	%
Maize-based only	326	65.2
Infant formula & Supplement	85	17
Boiled fish/meat.	55	11
Pap + milk	31	6.2
Fruits and vegetable	3	0.6
<b>TOTAL</b>	<b>500</b>	<b>100</b>

**Table 11: Reasons for The Type Of Weaning Foods Given to Their Children**

Reason for weaning	Frequency	%
Baby cry often as only breast milk cannot satisfy the baby	233	44.6
Make child healthy and strong	156	31.2
To get child accustomed to eating other foods	57	11.4
Breast milk and commercial weaning foods [CWFs] can no longer satisfy baby especially when away at work	49	9.8
Health workers' advice	15	3
<b>TOTAL</b>	<b>500</b>	<b>100</b>

**Table 12: Types of Weaning Foods Later Introduced to the Children by Respondents**

Types of weaning foods later introduced to the children	Breakfast		Lunch		Supper	
		%		%		%
Amala/eba/foofoo/boiled rice only	211	42.2	299	59.8	181	36.2
Beans and its products/boiled fish/meats	179	35.8	160	32	162	32.4
Ogi + milk	93	15.8	29	5.8	123	24.6
Commercial weaning foods	14	18.6	1	0.2	10	2
Fruits & vegetables	1	0.2	5	1	5	1
No response	2	0.4	6	1.2	19	3.8
<b>TOTAL</b>	<b>500</b>	<b>100</b>	<b>500</b>	<b>100</b>	<b>500</b>	<b>100</b>

Amala/eba/ foofoo/boiled rice and stew were ranked as the most popular weaning foods mentioned by the majority of the mothers given to their children during the meal times (breakfast 42.2%; lunch 59.8% and supper 36.2%) Table 12

Consumption of food groups in relation to Legumes and /or animal products was low, as only a few mothers included these into foods given in a day. These foods items mentioned were beans, soybeans and its products, milk and boiled meat/fish.

The result of the 24 hours dietary recall maintained further that majority of the mothers gave Ogi , amala/eba/ foofoo/boiled rice. These same food were reportedly given three times a day as 223 (44.6%)mothers gave them in the morning; 273 (54.6%) in the afternoon; and 184 (36.8 %) at night . This is followed by those mothers who gave foods that are legumes and /or animal products (beans, meat, fish, milk etc.), which was also low. Consumption of fruits and vegetables was very low in both Tables 12 and 13.

**Table 13: Mothers' 24 Hours Dietary Recall Of The Weaning Foods Given to their Children**

24hrs Dietary Recall	Morning	%	Afternoon	%	Evening	%
roots & tubers/starch only	223	44.6	273	54.6	184	36.8
Legumes &/or animal products	138	27.6	140	28	167	33.4
Maize-based+milk	111	22.2	66	13.2	103	20.6
Commercial weaning foods	10	2	2	0.4	10	2
Fruits & vegetables	6	1.2	3	1.6	11	2.2
No response	12	2.4	11	2.2	25	5
<b>TOTAL</b>	<b>500</b>	<b>100</b>	<b>500</b>	<b>100</b>	<b>500</b>	<b>100</b>

Respondents were asked their major source(s) of information on weaning foods, 402 (80.4%) claimed that the clinic was their source of information on choice of weaning foods given to their children. Other sources mentioned by the respondent included; Radio/Television/Magazine 64 (12.8%); and parents/neighbours/friends 34 (6.8%) Table 14.

**Table 14: Mothers' Sources Of Information On Choice Of Weaning Foods Given To Their Children**

Mothers' sources of information on choice of weaning foods given to their children	No	%
Clinics	402	80.4
Television/Radio/ Magazine	64	12.8
Parents/Neighbours/Friends	34	6.8
<b>TOTAL</b>	<b>500</b>	<b>100</b>

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**Respondents' knowledge about weaning foods and weaning practices.**

The majority of the mothers 230(46%) stated that weaning foods should be introduced before 6 months; followed by only 181 (36.2%) mothers who supported that 6 months should be the appropriate age. However, only a few proportion of the mothers 79 (15.8%) mentioned that weaning foods should be started after 6 months

When mothers were asked to mention those weaning foods that could first be introduced to children. 240 (48%) mentioned pap /amala with stew only; followed by a fairly high number of mothers 202 (40.4%) who mentioned boiled fish/meat, beans and products. However, there was a very low frequency of those mothers 44 (8.8% who mentioned pap with protein-based foods. In addition, 11 (2.2%) mentioned commercial weaning foods (such as frisolac with irons, SMA, Nan, Cow & Gate, Jerry) while very few of the mothers 3 (0.6%) mentioned fruits and vegetables (Table 15).

**Table 15: Mothers' responses on types of weaning foods that can be given to children**

Weaning foods that can be given to children	Frequency	%
Pap/amala with stew	240	48
Boiled fish/meat, beans and products	202	40.4
Pap + milk	44	8.8
Commercial weaning foods	11	2.2
Fruits and vegetable	3	0.6
TOTAL	500	100

Mothers level of knowledge were further assessed by asking them to state those aspect of child growth and development that could be affected by the quality of the Weaning Pattern adopted and those foods that could promote it. Almost all mothers 99.2%) mentioned retarded growth, low body resistance to diseases and untimely death as aspects of child development that could be affected by the quality of the Weaning Pattern adopted by mothers Table 16

Furthermore, 301 (60.2%) mothers mentioned legumes and /or animal products foods (which include milk, fish, meat beans and products) as foods that could promote child growth and development and this time around, a low frequency of mothers 143 (28.6%)

mentioned maize-based foods/ root and tubers/ starch only. Other foods rarely mentioned were fruits and vegetables Table 17.

**Table 16: Aspects Of Child Development That Could Be Affected By The Quality Weaning Adopted By The Mothers**

Aspects of child development that could be affected by the quality of weaning adopted by the mothers	Frequency	%
Retarded growth/Low body resistance to disease/Untimely death	496	99.2
No idea/ Don't know	4	0.8
<b>TOTAL</b>	<b>500</b>	<b>100</b>

**Table 17: Weaning foods that could promote child growth and development**

Weaning foods	Frequency	%
Maize- based/roots & tubers/starch only	143	28.6
Protein -based foods	301	60.2
Pap + milk/ animal products	39	7.8
Commercial weaning foods [CWFs]	11	2.2
Fruits and vegetables	6	1.2
<b>TOTAL</b>	<b>500</b>	<b>100</b>

*Respondents' attitudes towards weaning practices (Table 18)*

The respondents' attitudes towards weaning practices were assessed by asking them to express their opinions on certain weaning practices. Majority of the respondents 397(79.4%) strongly disagreed with the statement, that eggs should not be given to a baby because it can make him steal while less than ten percent respondents 42 (8.4%) strongly agreed with the statement. Indeed, the respondents' attitudinal level towards this statement could be regarded as being positive. This is because respondents' responses are well above the expected mean of 250.

Furthermore, 228(45.6%) respondents strongly disagreed with the statement that only breast milk should be introduced to a baby before 6 months of age while 216(43.2%) respondents strongly agreed. This reflected a negative attitudinal level of the respondents. A greater proportion of the respondents 439(87.8%) strongly agreed that locally available foods are equally as good as processed foods for weaning diet, which indicated a positive attitudinal level by the respondents. Most of the respondents 331(66.2%) strongly agreed that commercial weaning foods are good for babies if only the prices are affordable. This also indicated a negative attitude by the respondents. However, only a few respondents' 54(10.8%) respondents strongly disagreed with the statement.

Majority of the respondents 465 (93%) strongly agreed that fruits could be given to babies as soon as they are 6 months and above. 287(57.4%) respondents strongly agreed that vegetables are good for children while 139(27.8%) strongly disagreed. In relation to the last two statements above, the overall attitudinal level of the respondents was positive.

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**Table 18: Distribution Of Respondents' Attitudes Towards Certain Weaning Practices**

Views of mothers on certain weaning practices	Strongly agree	%	Strongly disagree	%	Disagree	%	Undecided	%
Eggs should not be given to a baby because it can him steal	42	8.4	397	79.4	49	9.8	12	2.4
Only breast milk should be introduced to a baby before 6 months of age	216	43.2	228	45.6	32	6.4	24	4.8
Locally available foods are equally good as processed foods for weaning diet	439	87.8	27	5.4	18	3.6	16	3.2
Fruits can be given to babies as soon as they are 6 months & above	465	93	17	3.4	7	1.4	11	2.2
Vegetables are not good for children	139	27.8	287	57.4	50	10	24	4.8
Commercial weaning foods	331	66.2	54	10.8	67	13.4	48	9.6

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### General comments of the respondents on weaning practices

Respondents were asked to comment generally about those weaning practices that are not good. 290(58%) identified poor hygienic preparation and handling of children foods as well as their feeding utensils. Other common responses given by the respondents included poor environmental condition of the house and mothers' dirty habit 103 (20.6%); Wrong timing of introduction of complementary foods and early termination of breast-feeding 47 (9.4%) see Table 19. When asked to offer suggestions as to what can be done to correct these bad weaning practices, the following responses were given. Maintenance of good hygienic preparation of children food 292 (58.4%); listening to the health workers advice 94 (18.8%); use of feeding bottles 23 (4.6%) See table 20.

**Table 19: Bad weaning practices identified by the mothers**

Bad weaning practices identified by the mothers	Frequency	%
Poor hygienic preparation / food handling and feeding utensils	290	58
Poor environmental condition and mothers dirty habit	103	20.6
Wrong timing of introduction of complimentary foods and early termination of breast feeding	47	9.4
Giving unhealthy diet to children	32	6.4
No response/Don't know	28	5.6
<b>TOTAL</b>	<b>500</b>	<b>100</b>

**Table 20: Mothers suggested solutions to bad weaning practices**

Mothers suggested solutions to bad weaning practices	Frequency	%
Good hygienic preparation of children foods	292	58.4
Making use of the health workers advice	94	18.8
Close monitoring of children especially during the weaning period	15	3
Use of feeding bottle	23	4.6
Don't know	76	15.2
<b>TOTAL</b>	<b>500</b>	<b>100</b>

The most popular weaning problems 320(64%) mothers claimed they encountered during this period were teething problems. These teething problems mentioned were frequent fever, diarrhea, vomiting, cough constipation and frequent crying. Also identified by the respondents 38 (7.6%) is lack of good knowledge of those easily affordable local weaning foods that can provide a wellness diet (Table 21).

Mothers were further asked for their suggested solutions to these weaning problems already mentioned. The commonest suggestion mentioned were; taking the child to the clinics' use of the prescribed drugs 208(41.6%). Only a few mothers mentioned counseling by the health workers about weaning foods 72(14.4%). Also, 130 (26%) suggested preparation of several dishes to give child room to select food of choice (Table 22).

**Table 21: Weaning problems encountered by mothers**

Weaning problems encountered by the mothers	Frequency	%
Teething problems usually accompanied by frequent fever, diarrhea, vomiting, cough, constipation, sleeplessness and frequent crying	320	64
Refusal of foods besides breast milk/ difficulty in knowing the appropriate time and how to introduce weaning foods	104	20.8
Lack of good knowledge of those easily affordable local weaning foods that can provide a wellness diet	38	7.6
Don't know	38	7.6
<b>TOTAL</b>	<b>500</b>	<b>100</b>

**Table 22: Mothers' suggested solutions to the weaning problems they encounter**

Solutions suggested by the mothers	Frequency	%
Taking children to clinic and use of prescribed drugs	208	41.6
Preparation of several dishes such that the child can select food of choice	130	26
Taking to counseling done by the health workers on weaning foods	72	14.4
Buying of cooked foods from the food vendors to reduce the number of times mothers herself cook	20	4
No idea	70	14
<b>TOTAL</b>	<b>500</b>	<b>100</b>

## TEST OF HYPOTHESIS

The following null hypotheses were tested by the study. There will be no association between the following:

Education of the mothers and the children's ages at introduction to weaning foods.

Occupation of the mothers and the children's ages at introduction to weaning foods

Occupation of the mothers and type of weaning foods first introduced to children

Mother's source of information and the children's ages at introduction to weaning foods

The confidence level is tested at 95 percent hence the null Hypothesis is rejected if  $P < 0.05$  in all the tests. And the null Hypothesis is accepted if  $P > 0.05$  in all the tests.

Hypothesis 1 stated that there would be no significant association between the education of the mothers and the children's ages at introduction to weaning foods. Table 23 shows that, there was a significant association between the mothers' education and the children's ages at introduction to weaning foods. This implies that the higher the educational level of the mothers, the more appropriate the age at introduction to weaning food will be.

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Table 23: Association between Mothers education and the children's ages at introduction to weaning foods.

Age of the child (Months)	Low Education Group			High Education Group	Total
	No formal education	Primary six	Secondary school	Post-secondary school	
4	26	73	19	28	146
5	8	35	19	15	77
6	11	29	23	13	76
7	11	43	41	18	113
8	15	15	9	1	30
9	1	24	17	7	49
	63	224	128	85	500

$\chi^2$  (high education mothers) = 5 months

$\chi^2$  (low education mothers) = 4.6 months

$P = 0.033$

Hypothesis two stated that there would be no significant association between the occupation of the mothers and the children's ages at introduction to weaning foods. Table 24 shows that there is no significant relationship between the mothers' occupation and the children's ages at introduction to weaning foods. This implies that the mothers' work does not influence the age at which the child would be started on weaning foods

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Table 24: Association between Mothers' occupation and the children's ages at introduction to weaning foods

Age of the child (months)	Housewife Group 1	Petty trading Group 2	Artisan Group 3	Civil servant Group 4	Self employed Group 5	TOTAL
Before 4	9	103	24	8	2	146
4	10	45	12	8	1	77
5	7	49	10	8	2	76
6	9	60	25	17	2	113
7	2	16	11	0	1	30
Above 7	3	29	11	6	0	49
No response	0	8	1	0	0	9
TOTAL	40	310	94	48	8	500

$$\chi^2 = 1.586$$

$$P = 0.006932$$

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Hypothesis 3 stated that there would be no significant association between the Occupation of the mothers and type of weaning foods first introduced to children. Table 25 showed that there is significant association between the occupation of mothers and the types of weaning foods based upon the differences perceived between the Civil servant occupational group and the other groups represented by the modal proportion (Petty traders). This implies that mothers' occupation does affect the types of weaning foods given to their children.

Table 25 Association between mothers occupation and type of weaning foods first introduced to children

Classification of foods given	Housewife	Petty trading	Artisan	Civil servant	Self employed	TOTAL
Maize-based foods	26	217	66	12	5	326
Boiled fish/meat	2	28	13	12	0	55
Pap + Milk	3	15	5	6	2	31
Commercial weaning foods	8	49	10	17	1	85
Fruits & vegetable	1	1	0	1	0	3
TOTAL	40	310	94	48	8	500

$\chi^2=48.55$

$P=0.00$

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Hypothesis 4 stated that there would be no significant association between the mothers' sources of information and the children's ages at introduction to weaning foods. Table 26 showed that there is no significant relationship between weaning practices as indicated by weaning age and sources of information obtained. This implies mothers' sources of information do not influence the children's ages at which weaning foods were introduced.

Table 26: Association between the mothers' sources of information and the children's ages at introduction to weaning foods

Age of the child	Parents/ Neighbors/friends Group 1	Clinics Group 2	Television/ Radio Group 3	TOTAL
< 4 months	6	127	13	146
4 months	11	54	12	77
5 months	4	63	9	76
6 months	5	93	15	113
7 months	3	21	6	30
> 7 months	3	40	6	49
No response	2	4	3	9
TOTAL	34	402	64	500

$$\chi^2 = 2.879$$

$$\text{Degree of freedom} = 487$$

$$P = 0.4745$$

## CHAPTER FIVE

### DISCUSSION

The results of the study are discussed under the following sub-headings:

#### *Demographic characteristics of the mothers*

The findings revealed that in Ibadan North West Local Government area, the mean age of the mothers interviewed was 26 years while that of their children was 5 months. The result attained in this study showed that there was a significant difference in the children's ages at which weaning foods were first introduced and education of the mothers ( $P = 0.033$ ). Those mothers with higher education introduced weaning foods to their children at approximately 4.6 months of age while those mothers with lower education introduced foods to their children at 5 months of age. Based on this result, it can be implied that those mothers with higher education had introduced weaning foods earlier to their children than those mothers with lower education. This finding agreed with those studies done on (i) the weaning practices of the Hausas, Yoruba and Ibos in Nigeria (Uwaegbute 1999); and (ii) the Influence of mothers' education and occupation on breast-feeding and weaning children in Markurdi, Nigeria (Igbedioh 1994). Various reasons may be held accountable this practice. This problem of early introduction of weaning foods was more evident among the educated mothers who work a long hours outside home, which results in separation from their children for long periods especially after the completion of their maternity leave. Mothers with higher education level usually work away from home, hence the need to introduce supplements earlier. A literature also reported that mothers having a better education status tended to wean earlier, possibly due to their workload and time constraints, unlike the illiterate or lower educational status mothers who tended to wean much later (Kikafunda 2003). Sometimes, the effects of marketing breast-milk substitutes on breast-feeding decisions and duration can also be influenced by the education level of the mothers.

In this study, finding also revealed that occupation of the mothers has no significant effect on the children ages at which weaning foods was introduced ( $P = 0.069$ ).

Contrarily, study done in Ethiopia indicated that mothers' occupation was significantly associated with early weaning, in which case, mothers working outside their home had 3.5 times higher chance of early weaning compared to housewives.

Furthermore, the findings in this study indicated that, a significant association existed between the types of weaning foods given to children and the mothers' occupation ( $P = 0.000$ ). This could be based on the perceived differences between the civil servant occupational group and the other groups represented by the modal proportion (petty trading). Many factors may be responsible for this result, even though, some mothers may be fully aware of the importance of breastfeeding for their children, they are limited to the extent on which they can practice exclusively breast-feeding on their children. Some mothers have to resume back at work after a short period of maternity leave. As a result of which they are left with the option of introducing different types of weaning foods in an effort to make for this shortcoming. Some of the mothers tend to rely on commercial advertisements for baby formula and other weaning foods, which can be viewed on the national television as well as through influence from the clinic and even from their neighbours. Most time, mothers resulted to those weaning foods that are cost effective, convenient and less time consuming.

### *Breast-Feeding Practice*

Out of the 500 mothers interviewed, 320 (64%) of the mothers were still breast-feeding their children while the remaining mothers 180 (36%) had already stopped breast-feeding their children as at the time of this study. Early termination of breastfeeding before 12 months was reported by a small proportion 11 (6.1%) of the mothers. On the other hand, a greater proportion of the mothers (93.9%) had breastfed their children for greater than 12 months. Less than 50% of the breastfeeding mothers had indicated their intention to breastfeed their children for as long as 24 months (35%). Furthermore, in this study, 127 (70.6%) mothers had already stopped breastfeeding because they felt that child is matured enough to be introduced to complementary foods as well as getting the child accustomed to eating other foods besides breast milk. Other reasons given were child refusal to suck breast milk 29 (16.1%); nature of the mother's job 9 (5%) and preparation to have another child, 15 (8.3%). Overall performance of the mothers in this result reflects an indication of poor

weaning practices by the mothers, which deviates from World Health Organization current infant and child recommendation. However, the findings in this study are similar to previous studies, which reported that, reasons given by the mothers for termination of breastfeeding were variable depending on individual mother's circumstances. Some mothers remove their children from the breast because they felt that breast milk was not sufficient, or due to pregnancy or some because the child is old, mother's occupation, or mother's illness or sudden death (Fawzia 2005). Mothers in Kuwait also gave similar reasons for terminating breast-feeding (Amine and Al-Awadi 1990). The important fact is that, adequate breastfeeding and supplementary feeding during the first two years of life prevents malnutrition and retardation in growth and mental development in the formative years.

#### *Age of Introduction of Weaning/ complementary food.*

Findings of this study indicated that, a small proportion of the mothers 79 (15.8%) had started the weaning process at exactly 6 months whereas, 299 (59.8%) mothers started weaning process before months. Further findings in this study revealed that 338 (68.4%) respondents had introduced weaning foods because breast milk alone cannot satisfy their babies because they cry too often. Some mothers introduced foods in order to get the child accustomed to eating adult foods regardless of the age of the child. In order to fulfill the nutritional requirements of a rapidly growing child, addition of semi- solid foods are essential for the breast milk fed babies. This accounts for the recommendation made by World Health Organization about exclusive breastfeeding for the first 6 six months and, introduction of weaning foods thereafter. However, literature reported that most mothers in African setting rarely breast fed their infants exclusively for a full 6 months. Mothers usually give some water, juice, cow's milk; cereal etc in addition to breast milk (Kikafunda 2003). In a study done in Ilorin, Nigeria, 44.2% mothers commenced weaning by 3 months of age (Fagbule 2002). Similarly, another study done in Uganda reported that, negative weaning practice of introducing complimentary foods too early was prevalent among half of the children; mothers started the children on weaning foods as early as 3 month (Kikafunda 2003). These above practices are obvious deviations from the WHO recommendation. The consequences of inappropriate weaning practices carry a lot of risks especially in developing countries. The age of introduction of complementary

foods to breast fed infants is a public health importance; too early initiating of weaning foods is a risk factor for both increased morbidity due to diarrhea and food allergies. because, external challenges are introduced into the immature digestive tract leading to infant malnutrition ( Abidoeye et al 2000).

Further findings in this study also showed that, majority of the mothers 326(65.2%) commenced the weaning process with maize- based foods only, amala/eba foofoo with only stew, boiled rice only However, pap was the most popular food mentioned by the mothers. Pap or ogi is made from maize, millet, or guinea corn. Even when the mothers were asked to recall the foods given in the last 24 hours, the food pattern remained the same. Obviously, these energy based diet topped up the list of those foods items given by the mothers three times on a daily basis. This weaning food given by mothers in this study especially pap was barely fortified; few mothers (15%- 25%) included pap with milk in the diet given to their children. Some of the probable reasons may have been caused by lack of correct information about the appropriate weaning foods to give to children, influence from neighbors or supporting family members or even previous experience acquired from nursing older siblings, time and economic constraint to mention a few. A previous study on effect and causes of Protein energy malnutrition in Nigerian children indicated that 62 % of the mothers of malnourished children gave only pap (a maize-gruel) to their children with salt or sugar added to taste. None used multi-mix feeds of locally available foodstuffs such as millet, groundnut, beniseed and soybeans (Nweze 1995). Literature also showed that traditional weaning foods in West Africa are known to be of low nutritive value (Akinrele et al 1977; Guiro et al 1997) that is characterized by low protein, low energy density, and high bulk. Maize pap or koko has been identified as one of the common causes of protein- energy malnutrition in children during the weaning period (Fashakin et al 1992). A study in Uganda showed that a very high proportion of the porridges were fed to the children with a thin consistency. However, the energy density of these watery porridges was very low and to compound the problem, the porridges were not adequately supplemented with energy- and nutrient supplements such as milk, groundnut and eggs (Moshia 1998;kikafunda 2003).

Another important findings in this study showed that consumption of weaning food groups that included legumes, animal product and even fruits and vegetables were

barely given by the mothers to their children. Cereals form the primary basis for most of the traditional weaning foods in West Africa. The protein content of maize and guinea corn is of poor quality, low in lysine and tryptophan; these two amino acids are indispensable to the growth of the young child (Oycnuga 1978; Onliok et al 1992). Underwood (1995) also, reported that monotony of the diet might act synergistically with the consequences of repeated infectious morbidity, and result in chronically depressed appetite, limited acceptance of additional food in quantity and variety at the time when it becomes critical for meeting the nutritional needs of the growing infant.

Use of commercial weaning foods, known as a risk factor for infant malnutrition in the developing countries was found to be low in this study. This may be as a result of efforts by UNICEF to discourage the use of commercial weaning foods. Besides, the exorbitant prices of these commercial weaning foods could be beyond the financial capacity of most mothers especially those of poor socio-economic status. ,

Impressively, majority of the respondents claimed that the clinic was their source of information on the choice of weaning foods given to their children. Health professional play an active role by ensuring that not only are families well informed but also, that mothers receive appropriate help (Okolo 2002). This finding is consistent with a similar study done on the weaning practices of mothers in Ilorin, Nigeria, which also reported that health workers played a key role by positively influencing the fortification of pap among the mothers (Fagbule 1992). Therefore, it becomes very important to reinforce the importance of attending the clinic such that reliable and more accurate information could be acquired from the trained health professionals

Respondents' level of knowledge about weaning foods and weaning practices. To enable children to grow normally, there are many parental care giving behaviors related to food that are essential to ensuring adequate nutritional intake. Therefore, to engage in any of the critical care giving behaviors, mothers need access to the foods their children require; access to water, fuel and other resources to prepare and preserve these foods. They also need knowledge. This study showed that mothers did not have a clear knowledge about those issues raised about their weaning practices such as weaning diet that can be given to children. Vegetables and fruits are necessary primarily for the prevention of diseases and

deficiencies in the human body, however, assessment of the mother's knowledge in this study revealed that very few mothers know about the importance of fruits and vegetable. Out of the 500 mothers interviewed in this study, only 181 (36.2%) had a clear knowledge of the appropriate age when complementary foods can be commenced for children. Also, the study found that knowledge was not matched with practice among respondents who knowledgeable about their weaning practices. For instance, a greater number of the mothers in this study 301 (60.2%) mentioned legumes and animal products foods (which include milk, fish, meat beans and products) as those foods that could promote child growth and development. Whereas, mothers were hardly giving these foods items to their children in their actual weaning practices. Furthermore, majority of the respondents were knowledgeable regarding the aspects child development that can be affected by the quality of weaning adopted by the mother. Over ninety percent 496 (99.2%) of the mothers 99.2% mentioned retarded growth, low body resistance to diseases and untimely death. This disconnection between knowledge and practices need to be addressed by building a synergy between knowledge, resources available and child health.

#### *Respondents' attitudes towards certain weaning practices*

397 (79.4%) mothers interviewed in this study strongly disagreed with the statement, which stated that eggs should not be given to a baby because it can make him steal. This findings clearly showed that there has been some improvements in the attitudes of mothers towards this food taboos which is contrary to the reports of the study done on nutritional hazards of food taboos and preferences in Nigeria (Ogbeide 1994). Training and nutrition education of the mothers has helped in improving the mothers feeding practices (Feluga, Babatunde and Oyenuga 1993). However, it is pathetic to note that, a very low percentage of the mothers disagreed with this statement. This indicated this food taboos to some extent, still existed in Ibadan North-West local government areas and thus, warrants an immediate attention. Ogbeide in his study of the food taboos and food preferences in Nigeria wrote that lack of adequate protein intake could further be depleted by food prejudices or taboos which can adversely affect the health status of a population, i.e. cause protein-caloric malnutrition in children (Ogbeide 1994).



The attitude of the mothers in this study indicated that, a greater proportion of the respondents 228(45.6%) still strongly disagreed with the statement that breast milk alone should be introduced to infants for first 6 months of life. Even though, 216(43.2%) respondents strongly agreed, there is still more to be done in term of proper assessment of the health professional on their beliefs and attitude towards exclusive breast-feeding. Attitudes can be changed through persuasion. A message can appeal to an individual's cognitive evaluation to help change an attitude. Doctors and other health professional can be used to change the attitude of the mothers to exclusive breastfeeding.

A greater proportion of the respondents 439(87.8%) strongly agreed that locally available foods are equally good as processed foods for weaning diet. A study done on the nutritive value of three potential complementary foods based on cereals and legumes in Jos, Nigeria reported that these cereals and legumes are readily available with high nutrient potentials that could complement one another if properly processed and blended. It further stated that efforts are being made to ascertain the nutritive adequacy of these locally available blends (cereals and legumes) for possible use as complementary foods especially by the mothers during the weaning period (Oduntona et al 1995; Fernandez et al 2002; Miriam 2005).

The result of the mother's attitude to the statement "commercial weaning foods are good for babies if only the prices are affordable" indicated that 331(66.2%) strongly agreed with this statement. This is very unfortunate, because some mothers are obviously unaware of the recent improvements on the traditional weaning diets in the country. Miriam (2005) reported that, local formulations compared favorably with the proprietary formula like Nestle Cerelac in terms of protein, fat, ash, fiber and energy contents, as well as recommended daily allowance (RDA) for protein and fat. When it comes to the question whether such local diets can be used to substitute the more expensive proprietary formula products, the researchers believe that complementary foods formulated from locally available food commodities, have great potential in this aspect. Besides, proper reformulation and fortification, these local diets can provide nutritious foods that are suitable not only for weaning, but also as rehabilitation diet to malnourished children that can more cost effective (Miriam 2005).

### General comments of the respondents on weaning practices

The most popular comment by the mothers interviewed in this study did show that (290) 58% were able to identify those bad weaning practices as poor hygienic preparation and handling of children foods as well as their feeding utensils. Other important bad practices mentioned included poor environmental condition of the house and mothers' dirty habit; wrong timing of introduction of complementary foods/force/use of feeding bottles and early termination of breast-feeding. Furthermore, majority of the mothers attributed some symptoms (frequent fever, diarrhea, vomiting, cough constipation and frequent crying) as being a normal teething process. These symptoms are referred to as "teething problems" by those mothers interviewed in this study. This finding therefore calls for an educational intervention to assist the mothers to the link between poor weaning practices and the perceived teething problems.

A similar study done in Haiti on a group of women who had children age 6-24 months stated that women interviewed believed that the period of teething itself was associated with symptoms of diarrhea. Some of the participants also believed that teething diarrhea could occur when a nursing mother spent too much time in the sun and did not drink enough water before breast feeding her child (Purnina et al. 2003). However, it is very encouraging in the study finding that mothers seemed aware of the solution to these defective weaning problems mentioned. Taking the child to the clinics/ use of the prescribed drugs 208(41.6%) was the commonest suggestion mentioned. In a previous study done in Markudi, Nigeria it was also reported that mothers' decision to feed children with the appropriate diet was based on the hospital advice received from the health workers (Igbedioh et al 1995).

## CONCLUSION

The findings revealed that breastfeeding was found to be highly practiced among the mothers. The weaning foods were dominated by energy-based foods. Early weaning with water, maize-based/root / tubers/starchy grains and poor staples was widespread in Ibadan North-west local government. Consumption of protein, fruit and vegetables were very low and these could have negative implications on the micronutrient nutrition of children in Ibadan North- West Local government. The results of this present study indicate that, improper weaning practices, particularly the timing and consumption energy- based foods as weaning foods are prominent in this local government and thus, requires prompt interventions. Prompt interventions are needed to address these ongoing challenges. This is important in order to be able to reduce the high incidence rate of infection and childhood malnutrition that are usually associated with poor weaning methods.

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## RECOMMENDATIONS

Based on the findings of this study, the following recommendations are as follows:

### *Promotion Of Breast-Feeding And Good Weaning Practices Among Mothers*

Mothers are to practice exclusive breast-feeding for 6 months, and introduce complementary foods at 6 months while continuing to breastfeed until 2 years or beyond. Mother's nutritional knowledge is a factor of malnutrition. Therefore, the training and nutrition education of the mothers is necessary to change feeding practices and provide correct information. It is recommended that mothers and caretakers of young children be sensitized on the importance of proper nutrition to the growth and health of their children. They should be trained and equipped with childcare and feeding skills to enable them carry out appropriate breast-feeding and weaning practices.

More emphasis on food consistency after 6 months is important. Gradual increase of food consistency and variety as the child gets older as well as adapting the weaning foods to the child's requirements and abilities. Reinforcement of the mothers' knowledge on adequate and good weaning foods and practices are very important such that positive changes in health and nutrition of the children could be manifested.

Need to feed a child with a variety of foods to ensure daily nutrient intake is met. More legumes or animal products foods are recommended; meat, poultry, fish or eggs should be eaten daily as often as possible. Consumption of fruit and vegetables is also recommended. There should be diversification of food items that are less expensive, nutritive and convenient to give. Mothers need to be educated on food preparation from the commonly available weaning food items especially cost effective home-based complementary foods.

More emphasis should be made on improvement of mothers' practices of good hygiene and proper food handling, which include (1) washing of mother and the child's hand before food preparation and eating, (2) good environmental conditions of the house and its surroundings, (3) proper disposal of refuse and sewage, (4) using clean utensils to prepare and serve food, (4) using clean cups and bowls when feeding children and (5) avoid the use of feeding bottles, which are difficult to keep clean.

## *Nutrition education promotion*

Nutrition education need to be incorporated into primary health care programs, therefore the health workers and nutritionists can play key roles in relaying the information especially, the importance of adequate weaning foods and practices, infant health, host defense systems, home-based fortified foods, importance of varying the child's diet and practicing good hygiene when handling and storing the baby's food.

The development of recipe books of recipes (both in English and Yoruba) for weaning foods with high nutrient density using locally available foods is useful. When recipe books are available, they should be properly distributed to mothers. For those mothers with no or little formal education formal education, nutrition counseling and demonstrations are appropriate.

## *Training of the Health Workers and Child Care takers*

Health professional need to be able to help a mother to do it right, especially, when she is inexperienced or lack the knowledge or experienced support at home. It is therefore necessary for health professionals to play an active role by ensuring that not only are mothers well informed but also they are also able to receive appropriate help. There is the need for properly trained and professionally supported specialists who can lead and educate students and practitioners in this subject and reinforce the already the existing standards practices in health care institutions.

Health workers are another group requiring nutrition education. Their own knowledge of nutrition and good feeding practices may be limited. This can be corrected by retraining such health staff on the weaning and weaning foods. Health workers in ante-natal, post-natal clinics and those in the maternity and lying-in-wards must be periodically trained to update their knowledge on various weaning foods and weaning practices. Seminars and workshops could be organized by the government and non-government organization to ensure that workers are well informed about weaning period and complementary foods.

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# WEANING PRACTICES AMONG NURSING MOTHERS IN IBADAN NORTHWEST LOCAL GOVERNMENT AREA OF OYO STATE: IMPLICATION FOR NUTRITION EDUCATION

## INTRODUCTION

This questionnaire is based on a study aimed at identifying the weaning practices of nursing mothers in Ibadan North West Local Government Area.

Weaning practices means foods given to babies other than breast milk when they reach a certain age. This process is usually done gradually whenever mothers are about to stop breast-feeding these babies. Therefore, the purpose of this questionnaire is to obtain information related to weaning practices. Information given will contribute to the findings of this study, which will eventually be used to improve practices and the overall health of the community.

Please note that any information obtained will be regarded highly confidential.

Thanks for your co-operation.

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**SECTION A**

(Socio-demographic Information)

1. Age of the child: .....
2. Age of the mother: .....
3. Education of the mother:
  1. No formal education.
  2. Primary Six.
  3. Secondary School
  4. Post-secondary School
4. Education of the Husband:
  1. No formal education.
  2. Primary Six.
  3. Secondary School
  4. Post-secondary School
5. Occupation of the Mother:
  1. House Wife.
  2. Petty Trader.
  3. Artisan (Sewing Mistress, Hairdresser, etc.)
  4. Civil Servant or (Salary earner).
  5. Large scale business owner
6. Occupation of the Husband:
  1. Trading
  2. Artisan (e.g. Driver, Welders, Apprentice etc.)
  3. Civil Servant/Salary Earners.
  4. Business/Self employed

SECTION B (PRACTICES)

7(a) Are you currently breast feeding your baby?

1. Yes? If yes, go to question 7b.
2. No? If No, go to question 8a.

7(b) If yes, how many times in a day

1. 5 - 10 times
2. 11 - 15 times.
3. On demand
4. Others specify: \_\_\_\_\_

7(c) How long are you going to breastfeed your baby?

1. 12 - 15 months
2. 16 - 19 months
3. 20 - 23 months
4. 24 & above.
5. Others specify: \_\_\_\_\_

7(d) If No, why? \_\_\_\_\_

8(a) How long did you breast-feed your baby?

1. Less than 12 months.
2. 12 - 15 months
3. 16 - 19 months.
4. Above 19 months
5. Others Specify \_\_\_\_\_

9(a) How old was your child when you first gave other foods?

1. Before 6 months
2. 6 months
3. Above 6 months
4. No response.

9(b) Why did you introduce foods other than breast milk to your baby at this age?

1. Breast milk alone cannot satisfy her as baby cries too often.
2. Preparation to have another child.
3. Pressure from family/neighbors and friends.

4. Baby is old enough to be commenced on other foods and/or also to get her accustomed to eating other foods.

5. Others Specify: .....

10. What foods other than breast milk did you first introduced to your baby and state your reasons for giving them?

Type of Foods	Reasons
1.	

11. What other foods did you add later and state your reasons for giving them?

Type of Foods	Reasons
1.	

12. What did your child eat yesterday? (24-Hours dietary Recall)

Time food was given	Type of food given
MORNING	
AFTERNOON	
EVENING	

13(a) Where do you receive information on the choice of weaning foods given to your child?

1. Radio                      2. Neighbors and friends                      3. Clinics

(b) Amongst these sources mentioned which one influence your decision making on the choice of weaning foods given?

.....  
.....

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## SECTION C (ATTITUDE)

What are your views on the following statements? Tick the Appropriate answers in the columns created:

Views of mothers on certain weaning practices	1. Strongly agree	2. Strongly disagree	3. Disagree	4. Undecided / not certain
Eggs should not be given to a child because it can lead to him steal				
Only breast milk should be given to a child before 6 months of age				
Locally available foods are equally good as processed foods for weaning diet.				
Fruits can be given to babies as soon as they are 6 months & above.				
Vegetables are not good for children.				
Commercial weaning foods are good if only the prices are affordable.				

- 1 represents totally agree
- 2 represents totally disagree
- 3 represents disagree
- 4 represents undecided / not certain

## SECTION D (KNOWLEDGE)

20. At what age should a mother introduce food other than breast milk to her baby?  
 .....
21. Mention 2 Weaning Foods that could first be introduced to a child:  
 .....  
 .....
22. Mention 2 aspects of child development that could be affected by the quality of weaning adopted by the mother:  
 1. ....  
 2. ....

23. List 2 Weaning Foods that could promote child growth and development?

1. ....

2. ....

24. At what age should a child be given fruits?

.....

### SECTION E

25. (i). List the Weaning practices that are not good:

(ii) And, how can they be changed?

..... 2. ....

3. ....

26. (i). What are the Weaning problems encountered by the mothers?

1. .... 2. ....

3. ....

.....

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Yoruba version of the questionnaire

**FIFI ORO WA AWON IYA OLMO L'ENU WO LORI FIFI OUNJE MIRAN YATOSI  
OMI OYAN FUN AWON OMO OWO NI AGBEGBE ARIWA IWO OORUN  
NI ILU IBADAN, IPNLE OYO: ERE RE FUN IMO NI PA OUNJE.**

**ORO ISAJU:**

Iji oro wa ni lenu wo yi da lori iwadi ijinle nipa bi awon iya olomo ti se nfi ounjẹ miran fun awon omọ yato fun omi oyan nikan ni agbegbe Ariwa Iwo Oorun Ilu Ibadan.

Fifi ounjẹ miran fun omọ owo je ounjẹ ti awon iya olomo nirewe n fun omọ won pelu omi oyan nigbati won ba dagba to akoko kon. Igbese yi ni aye didie nigbati awon iya olomo ba ngbero lati gba oyan lenu awon omọ.

Fun idi eyi, ero ngba ifi oro wani lenu wo yi ni lati wadi awon omọ ti a ngba fun awon omọ ni ounjẹ miran yato fun omi oyan nikan. Gbogbo ohun ti e ba so, yoo fun iwadi yi ni anfani ati se oseyori ati papa julo yoo tun mu igbega ba omọ ti a ngba lati se eto bi a se nfi ounjẹ miran yato si omu fun awon omọ owo. Eeleyi yoo si mu igbega ba eto iera awon omọ ilu.

Jowo se akijesi pe gbogbo ohun ti o ba wa so nipa eto iwadi yi ni yoo je asiri ti erukemi ki yoo mo.

E se pupa fun ifowo so wo po yin.

**FUN ILO ILE-ISE NIKAN**

Nomba fomu \_\_\_\_\_

Ojo \_\_\_\_\_

Nomba Ile Oludahun \_\_\_\_\_

Adiresi \_\_\_\_\_



## IKILO TABI IMORAN KATI TELE

Jowo ko nomba idahun si inu iho ti o wa ni iwaju ibeere kookan, petu awon idahun  
napese, ati pe . si idahun re si ibi ti o ba ye .

### ABALA KINNI

1. Ojo oni omo \_\_\_\_\_

2. Ojo oni Iya omo \_\_\_\_\_

3. Eko Iya:

1. Nko lo si ile- iwe

2. Iwe mefa

3. Iwe mewa

4. Ile- iwe eko se owo (technical , Grade II)

5. Onimo eko ero/ onise owo bi (Olutoju alaisan, N.C.E)

6. Ile eko giga julo (University).

4. Eko Oka :

1. Nko lo si ile- iwe

2. Iwe mefa

3. Iwe mewa

4. Ile- iwe eko se owo (technical, Grade II)

5. Onimo eko ero/ onise owo bi (Olutoju alaisan, N.C.E)

6. Ile eko giga julo (University).

5. Ibe Iya:

1. Iyanwo ile

2. Oniworobo

3. Oni se owo (aso reran, Irun sise)

4. Osise ijoba/ Olowo asu

5. Iyoku (se alaye) \_\_\_\_\_

## 6. Ise Oko:

1. Owo si se
2. Ise agbe
3. Ise owo (awako, jorinjorin, kafinnta)
4. Osi se Ijoba / olowo osu.
5. Iyobu (Se alaye): \_\_\_\_\_

## ABALA KEEJI

7(a) Nje o si tun n sun omo yi loyan lowo- lowo?

1. Becni
2. Beeko

Ti o ba je beeni, lo si ibcere ti o tele (7b). Ti o ba je beko, lo si ibcere ikejo (8).

7(b) Ti o ba beeni, igba nielo ni ojumo?

1. Igba ma run - igba mewu
2. Igba mkanla - igba meedogun
3. Gbogbo igba
4. Iyoku (se alaye) \_\_\_\_\_

(c) Igbawo ni o ma sun omo yi omo yi loyan da?

1. Osu mejila - Osu Meedogun
2. Osu merindilogun - Osu Okandin-logun
3. Osu ogun - Osu Metale logun
4. Osu merindinlogun - Osu metadin logun
5. Iyoku : Se alaye \_\_\_\_\_

8(a). Ti o ba je beeko, ki ni idire?

(b) Igbawo ni o sun omo yi loyan da?

1. Osu mejila - Osu Metala
2. Osu merinla - Osu meedogun
3. Osu merindinlogun - Osu metadinlogun
4. Osu meji dinlogun - Osu okandinlogun
5. Iyoku (se alaye) \_\_\_\_\_

9a) Oni odu'osu mefo ni omo re nighuti o bere si fun ni ounjẹ akoko yato si omi oyan?

1. Ki o to pe osu mefa
2. Osu meefa geerege
3. Ole ni osu mefa
4. Iyoku (se alaye)

9b) Kini idire ti o se beere si fun ni ounjẹ miran yato si omi oyan ni osu yi?

1. oyan nikan ko to fun mo, ni to ri pe, omo isokun ni gba gbogbo.
2. Ma palemo lati bi omo miran
3. Awon alabagbe / Ore ni ko je ki ngbadun
4. Wahala odo awon ebi
5. omo to dagba to lati bere si ni je ounjẹ
6. Iyoku (se alaye-----)

10. Iru awon ounjẹ wo ni o koko fun omo re je yato si oyan ati pe kini idi re to se fun ni awon iru ounjẹ wanyi?

Ori si ri si ounjẹ Idi re ti o fi fun omo re

1.	
2.	

11. Iru awon ounjẹ mi ran yato si awon to ti daruko si waju ni o tun nfun omo yi je. Kini idi re?

Ori si ri si ounjẹ	Idi re ti o fi fun omo re

12. Kini awon ounjẹ ti o to yi je lana ( wakati merin din logun sehin )? Iru ounjẹ ti o je

Asiko ti o jeun	
Aaro	
Osan	
Ale	

13) Niho ni or gbo irohin labi imoran nipa si si ounje miran sun omo yato si omi uyun  
 14) ?

- 1. asoromagbesu / Mohunmanvoran
- 2. obu awon alabagbe / awon ore
- 3. ile- iwasa

15) Ninu awon ti odariko woyi, e wo ninu won ni o ma ndari re ni po awon ounje so o ma  
 16) omo ? \_\_\_\_\_

**ABALA KETA**

Komi awon ero re ni pa awon gbolohun yti. Fa ila si ibi Idahun ti a ba lbeere kokan mi ni  
 bi oye ti ape se si iwaju ji.

	Mo fayo mo daada	Mi o fara rara	Ko ri be	Nku le so
14) Eyin ko dara lati sun omo je nitori pe yo o jeki o ma o jale				
15) Omi ayem ni kon lo ye ki omo ma mu sun osu mefa				
16) Awon ounje ti o wa ni agbegbe wa nao dara bi awon ounje inu agalo sun omode je.				
17) A le sun awon omo osu mefa all pbe lo ni eso je.				
18) Ewebe ko dara sun omode				
19) Awon ounje inu agalo na dawo ti apa wa bu lati ra won				

## ABALA KERIN

21 Osu Odun meloni o ye ki ojo ori omo je, ki iya ta bere si fun ni ounje mi ran yato si oni oyan?

22 Daruko ounje meji ti a le koko fun omo owo je nigbati o ba se beere si fun ni ounje miran yato si oni oyan? 1. \_\_\_\_\_ 2. \_\_\_\_\_

23 Daruko ona meji ti idagba soko omo le si je ipa lara nipu bi iya se nfun omo ni ounje miran yato si oni oyan?

24 Daruko ounje meji ti o n mu omo dagba ni akoko ti a bo nfun ni ounje miran yato si oni oyan? 1. \_\_\_\_\_ 2. \_\_\_\_\_

25 Daruko ounje meji ti kii mu ki omo dagba bi oti ye

1. \_\_\_\_\_ 2. \_\_\_\_\_

26 Osu odunmelo ni ojo ori omo le je lati bere si fun ni eso je?

## ABALA KARUN

26(i) Kini awon ohun/ise ti awon iya olomo ma nse ti ko dara ni gbati won ba nfun omo ni ounje miran yato si oni oyan?

i. \_\_\_\_\_ 2. \_\_\_\_\_

ii. Bawo ni a se le se atunse?

27(i) Kini awon isoro ti awon iya olomo ma ndajirko ni akoko ti a ba nfun omo owo ni awon ounje miran yato si oni oyan?

(ii) Bawo ni a se le hori awon isoro wanyi?

1. \_\_\_\_\_ 2. \_\_\_\_\_

## Focus Group Discussion

### Introduction (Section 1)

I am \_\_\_\_\_ and my colleagues are \_\_\_\_\_  
We are students of the University of Ibadan. We are here to learn about ways of and  
rearing children. You have been selected to participate in this discussion because of your  
wealth of experience as mothers.

Let me inform you that in this discussion there are no right or wrong answers. All we are  
interested in are your views about issues that will be raised for discussion. I would like to  
assure that whatever you tell us will be made confidential and will only be used to design  
programme to assist other nursing mothers. For the avoidance of doubts your names will not  
be written down or recorded.

We however crave your indulgence to allow us use a tape recorder to record what we will  
discuss. So that we will not easily forget what has been discussed.

Thank you for coming.

## Discussion Points

No	Questions	Probe
1.	Why is it important to breast-feed babies?	
2.	What age do mothers start introducing foods other than breast- milk?	
3.	What are the types of foods usually given?	
4.	Among those foods mentioned what are those types of foods first introduced?	
5.	Why do mothers give these foods?	
6.	<p>(a) What are the mothers' sources of information on choice of complimentary foods given?</p> <p>(b) And which source influence mothers' decision making on the choice of weaning foods given.</p>	

Vote of thanks

Closing.

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