

## APPRAISING NUTRITION AND CHILD REARING AS AN ANTIDOTE TO PSYCHOLOGICAL WELL-BEING AND CHILD DEVELOPMENT IN NIGERIA

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### Abstract

*Optimal nutritional status results when children have access to affordable, diverse, nutrient-rich food; appropriate maternal and child-care practices; adequate health services; and a healthy environment including safe water, sanitation and good hygiene practices. This paper identified psychological theories that are relevant to nutrition and child development, and psychological approaches relevant to the problem of under-nutrition and child development in Nigeria. Availability of resources to the caregiver for its implementation is therefore imperative. These resources include knowledge and beliefs about child rearing, the health and nutritional status of the care provider, control of resources and/or autonomy for child care (these include decision making role and employment of caregiver), workload and time constraints for providing child care and social support (these include availability of alternate caregivers, sharing of workload, father's role in child care and community support). The growth and nutritional outcomes of children is dependent on a complex relationship between the intrinsic characteristics of the child and the competence of the mother in providing child care.*

**Keywords:** Nutrition, Under-nutrition, Child Care, Stimulation

### 1.1 Introduction and Background of the Study

Nutrition has a powerful influence on growth, development, and the productive life of every individual. Optimal nutrition at each stage of the lifecycle is therefore a fundamental human right with malnutrition being viewed as a denial of that right. Children's nutritional status is a reflection of their overall health. When children have access to an adequate food supply, are not exposed to repeated illness, and are well cared for, they reach their growth potential and are considered well nourished. Nutritional status is influenced by three broad factors: food, health and care (UNICEF 2013). Optimal nutritional status results when children have access to affordable, diverse, nutrient-rich food; appropriate maternal and child-care practices; adequate health services; and a healthy environment including safe water, sanitation and good hygiene practices. These factors directly influence nutrient intake and the presence of disease. The interaction between under-nutrition and infection creates a potentially lethal cycle of worsening illness and deteriorating nutritional status (UNICEF 2013).

The UNICEF conceptual framework defines nutrition and captures the multi-factorial causality of under-nutrition. Child under-nutrition is assessed by measuring height and weight and screening for clinical manifestations and biochemical markers. Indicators based on weight, height and age are compared to international standards and are most commonly used to assess the nutritional status of a population. Stunting (inadequate length/height for age) captures early chronic exposure to under-nutrition; wasting (inadequate weight for height) captures acute under-nutrition; underweight (inadequate weight for age) is a composite indicator that includes elements of stunting and wasting. Stunting and other forms of under-nutrition are clearly a major contributing factor to child mortality, disease and disability. For example, a severely stunted child faces a four times higher risk of dying, and a severely wasted child is at a nine times higher risk (Black, 2008). Specific nutritional deficiencies such as vitamin A, iron or zinc deficiency

also increase risk of death. Under-nutrition can cause various diseases such as blindness due to vitamin A deficiency and neural tube defects due to folic acid deficiency (UNICEF 2013). The broader understanding of the devastating consequences of under-nutrition on morbidity and mortality is based on well-established evidence. Knowledge of the impact of stunting and other forms of under-nutrition on social and economic development and human capital formation has been supported and expanded by more recent research. Earlier research clarified the harmful impact of inadequate intake of specific micronutrients such as iron, folic acid and iodine on development of the brain and nervous system and on subsequent school performance. The impact of iron deficiency, which reduces school performance in children and the physical capacity for work among adults, has also been documented. Under-nutrition early in life clearly has major consequences for future educational, income and productivity outcomes. Stunting is associated with poor school achievement and poor school performance (Dewey and Begum, 2011). What is now becoming clearer is that the developmental impact of stunting and other forms of under-nutrition happens earlier and is greater than previously thought. Brain and nervous system development begins early in pregnancy and is largely complete by the time the child reaches the age of 2. The timing, severity and duration of nutritional deficiencies during this period affect brain development in different ways, influenced by the brain's need for a given nutrient at a specific time (Cusick and Michael, 2012). While the developing brain has the capacity for repair, it is also highly vulnerable, and nutrient deficiencies during critical periods have long-term effects. Moderate and severe wasting represents an acute form of under-nutrition, and children who suffer from it face a markedly increased risk of death. Globally in 2011, 52 million children under 5 years of age were moderately or severely wasted, an 11 per cent decrease from the

estimated figure of 58 million in 1990. More than 29 million children under 5, an estimated 5 per cent, suffered from severe wasting (UNICEF Global Nutrition Database, 2012).

Malnutrition and nutrition related diseases continue to be problems of great public health importance in Nigeria. Despite being a lower-middle-income country, Nigeria has the highest number of stunted children under age five in sub-Saharan Africa, and the second highest in the world. The 2013 Nigeria Demographic and Health Survey (NDHS) reported 37% of children under five as being stunted, 29% as underweight, and 18% as wasted. In addition to a lack of basic protein and energy, the immediate causes of under-nutrition are a lack of micronutrients such as vitamin A, iodine, iron, and zinc. Almost 63% of women are anaemic and 31% are iodine deficient, while close to 30% of under-fives are vitamin A deficient (VAD) and 20% are zinc deficient. There are many causes of malnutrition in Nigeria, but the most obvious are poor infant and child feeding practices, lack of access to healthcare, water, and sanitation, and a high level of poverty. Level of education of mother has influence on the nutritional status of the children. Children whose mothers have secondary or higher education have relatively lower rates of underweight, stunting or wasting than their counterparts with no formal education. Children whose mothers have no education have rates of 21, 21 and 8 percent respectively for moderately underweight, stunted and wasted; while the rates for severe underweight, stunted and wasted are 15, 32 and 4 percent respectively. Prevalence of malnourishments decreases as wealth status improves from poorest to richest quintiles (MICS Nigeria, 2011). Empirical investigations have identified the problems of high levels of poverty and food insecurity, which have prevailed among the low income population in the midst of rising prices, including high cost of meat, as well as high costs of living and dearth of animal protein among the causes of malnutrition. Food, health and care are affected by social, economic and political factors. The combination and

relative importance of these factors differ from country to country. Understanding the immediate and underlying causes of under-nutrition in a given context is critical to delivering appropriate, effective and sustainable solutions and adequately meeting the needs of the most vulnerable people.

## **1.2 Statement of the Problem**

In 2014, almost all wasted children under 5 lived in Asia and Africa (2015 edition of UNICEF, WHO and World Bank Group). Stunting rates are dropping but 159 million children around the world are still affected. There are 41 million overweight children in the world; about 10 million more than there were 2 decades ago. Wasting still threatens the lives of 50 million children across the globe. In Africa, the number of stunted children is rising in 2014 Africa contributes about 37% of the world's stunted children. Three out of five sub-regions in Africa, Eastern Africa, Middle Africa and Western Africa, have rising numbers of stunted children under 5. Although under-nutrition is a problem throughout the country, there are three zones in Nigeria that represent the majority of those affected – North West, North East, and North Central (including the capital Abuja). Rural areas are also disproportionately affected for many reasons, including distance from markets, limited health and education resources, as well as access to sanitary water and refuse disposal sites (MICS Nigeria 2011). Many nutritional problems in Nigeria are compounded by poor infant and child feeding practices. Babies are deprived of crucial immunisation against bacteria and various viruses when they are most vulnerable. The low status – and particularly the low level of education – of women is another key cause of malnutrition. A mother's malnutrition is closely linked to malnourishment in her newborn babies and children. Despite several approaches and attempts at reducing rates of under-nutrition among Nigerian children, the prevalence remains high. In response to this problem of malnutrition, the Nigerian

government launched its national policy on food and nutrition in 2002, with the goal of improving the nutritional status of all Nigerians (Akinyele, 2009). This policy sets specific targets, which include reducing moderate and severe malnutrition among children under five years old. Instead of a reduction, what has been observed is that the national prevalence of under-nutrition remained largely stable between the years 2003 and 2013, with the prevalences of underweight, wasting and stunting essentially static. Good nutrition is imperative for optimal mental and physical development, learning, and school performance. Under-nutrition affects cognitive development by causing direct structural damage to the brain and by impairing infant motor development and exploratory behaviour. Among the major steps taken towards tackling the problem of malnutrition was the propagation of use of soybean, including the introduction of improved production and utilization innovations among households. The laudable efforts notwithstanding incidence of malnutrition has persisted among children, suggesting that the factors that account for differences in the nutritional status have not been properly elucidated.

### **1.3 Objective of the Study**

This paper would present psychological theories that are relevant to nutrition and child development and psychological approaches relevant to the problem of under-nutrition and child development in Nigeria.

### **1.4 Theoretical Framework**

#### **1.4.1 Behavioral and Social Learning Theories**

This set of theories suggests the importance of the environment and nurturing in the growth of a child. Prominent theories in this tradition include behaviorism by John Watson (1928), theory of operant conditioning by Skinner (1953), and social learning theory by Albert Bandura (1977). Watson saw children as passive beings that like clay can be molded. Skinner introduced the term

‘operant conditioning’ to describe the fact that learning occurs as a result of the organism responding to, or operating on, its environment (Anderson, Johnstone, Remley, 1999). Bandura believed that children learn by observation and imitation. Children tend to be selective in what they imitate and they are more eager to imitate a behavior if it results in outcomes they value. Social learning theories in general maintain that overt reinforcement, punishment, or observational learning molds children’s learning. They have been instrumental in developing education policies in the United States and have also helped to lay the foundation for early intervention programs such as Head Start.

#### **1.4.2 The Bio-ecological Model**

Child development takes place through processes of progressively more complex interaction between an active child and the persons, objects, and symbols in its immediate environment. To be effective, the interaction must occur on a fairly regular basis over extended period of time (Bronfenbrenner, 1998). The ecological environment, as Bronfenbrenner (1979) put it, is a “set of nested structures, each inside the next like a set of Russian dolls”. A child’s development is gradual and involves a reciprocal relationship between the child and his environment. This is a major breakthrough in theorizing complicated structures of multicultural and multiethnic societies, such as Canada. From a functional perspective, this hierarchically organized system can be better understood within a related framework, the Process, Person, Context, and Time (PPCT) model (Gomez-Pinilla, Vaynman, 2005).

#### **1.4.3 The PPCT Model**

Bronfenbrenner’s ecological theory has four major components: process, person, context, and time (Gomez-Pinilla, Vaynman, 2005).

**Process**

The proximal-or near-processes involve all sorts of transactions between the child and the immediate surroundings that are responsible for the child's competencies and general well-being. These transactions drive development. From a research perspective, examples of proximal processes, either protective or preventive, can be phrased in questions, such as: Does the child get lessons about appropriate behaviors? Does the child receive authoritative parenting (love in combination with strict rules)? Does the child get protection from physical and psychological harm (toxins, fire, etc)? Does the child get nutrition? Does the child get parental involvement in understanding religious or cultural practices? In addition to the proximal processes, there are also distal processes at work. Distal processes include a family's own ability to support a child as well as interact with other environments, of which, the child is a part of (e.g., access to community resources, resources to enable integration with different people of different ethnic or social classes). However, unlike the proximate processes, the distal processes may have only an indirect influence on the child.

**Person**

The influence of family, caregivers, or peers is largely determined by the characteristics of the child itself. For example, children with disabilities can be at greater risk of experiencing negative social relationships. Similarly, differences between boys and girls in their maturity, coping skills, reasoning etc., contribute to differentials in social relationships and healthy functioning in terms of biology. In what follows, individual level variables, such as age, sex, temperament, disability and illness can be linked to development. Such variables can also influence proximal processes, either directly or indirectly. For example, child care practices (proximal processes) will differ based on a child's temperament, which in turn, impact growth and development.

## **Context**

The best known component is the ecological context, and is perhaps, the most important of all four components in conceptualizing and designing studies on child development. Context refers to the multiple venues modifying the proximal processes, and they include environments in which the child is in constant interaction, whether it's physical, social, or economic interaction. For example, the fewer children a caregiver has, the better he/she is able to provide quality care, which influences positive development. The context, according to Bronfenbrenner, constitutes four distinct concentric systems: micro, meso, exo, and macro, each having either direct or indirect influence on a child's development. The salient elements of the four systems are explored here. A fifth system, chrono, was later added to incorporate the dimension of time as it relates to a child's environment. This may involve internal or external changes, such as the physiological changes or events, such as the loss of a parent. **Microsystem:** The microsystem is the innermost level, the one that is closest to the child that the child is in direct contact with. The microsystem consists of such contexts as family, playmates, day care, school, and neighborhood, wherein the proximal processes occur. This layer has the most immediate and earliest influence on the child. The relationships at this level can be, as Bronfenbrenner called it, bi-directional since the child's family can influence the behavior of the child and vice versa.

## **Time**

The time component of Bronfenbrenner's model encompasses various aspects, such as chronological age, duration and nature of periodicity. An event has varying degrees of impact on development, and the impact decreases as time progresses. Events, such as a parent's debilitating illness, divorce, or change of residence can have a more profound impact on young children compared to older ones.

In summary, the systems theory surmises that human development must move beyond examining a child's biology. The bio-ecological theory is the first theory to embed the context in which children live by biological predispositions. It is based on the thesis that children do not develop in isolation, but, develop instead in a variety of contexts or environments in which they interact continuously. Development is not only shaped by the immediate environment, but also by the interaction with the larger environment

#### **1.4.4 Cognitive Theories**

Cognitive development is the name given to the intellectual processes that help individuals understand and learn about the world around them. The word cognition includes all of the mental activities related to thinking, knowing, problem solving, remembering and communicating. Cognitive development is the process of obtaining information from infancy to adulthood and includes the development of the mental processes that are used in learning. In cognitive development, there is always a continuous progress from spontaneous actions and reflexes towards desirable habits and intelligence. The cognitive development theories focus on how children learn. Jean Piaget (1952) is a prominent theorist who focused on what children knew and how they knew it. Children's understanding of the world is the result of their involvement and interactions (Piaget & Inhelder, 1962). Lev Vygotsky's (1978) socio-cultural theory maintained that children's knowledge is socially constructed. Children's acquisition of their culture's values, beliefs, and problem-solving strategies is in response to social interaction with more knowledgeable members of society. Vygotsky devised the concept, the zone of proximal development to include the range of tasks that are too complex to be mastered independently by a child but can be accomplished with adult guidance or associations with knowledgeable peers. By introducing the influence of social environment, Vygotsky made a significant contribution to

our understanding of children's development (for a detailed comparison of Piaget's, Gesell's, and Vygotsky's theories, refer to the work of (Almond and Currie, 2011).

### **Fetal Programming**

Fetal programming is the hypothesis that maternal and fetal nutrition can have a profound, lifelong effect on the health of the child as an adult. (Jones, 2005). David Barker at Southampton originated the term, fetal programming, to describe his findings from epidemiological studies that linked health problems in middle-aged adults with low birth weight. In studying their medical problems, Dr. Barker found that heart disease and diabetes were more common among people who were born with lower birth weights. He suggested that deprivation prenatally, due to poor nutrition, alcohol and drug use, and other factors, like poverty, caused changes in the fetus and the way its organs developed (Lau and Rogers, 2004). These changes, later in life led to a higher risk of certain kinds of disease. Others have suggested that this idea can be applied to the effects of stress experienced by the pregnant woman. Stress leads to higher levels of the stress-related hormone, cortisol, that may affect how the baby responds to stress as a child and as an adult thereby creating additional challenges and problems (Lucas, Morley, Cole, Lister, Leeson-Payne, 1992).

### **1.5 Literature Review**

In June 2002, under the auspices of UNICEF/ WHO Baby Friendly Hospital Initiative (BFHI) programme, Owuaje et al(2002) of the Department of Medicine, University College Hospital Ibadan, Oyo state, Nigeria, conducted a study among health professionals. This study portrayed that nurses who had taken part in BFHI workshop were knowledgeable about exclusive breastfeeding and therefore were very positive in attitude, practices and promotion of exclusive breastfeeding. In 2003-2004, UNICEF/ WHO criteria was used to assess 196 health professionals

who were trained in Ghana, Nigeria, Zambia and Zimbabwe about counselling on breastfeeding and HIV. Out of the 196 trained workers who followed up from the 4 participating countries, Nigeria had 97% as the highest number of health workers with adequate knowledge on the importance of breastfeeding whilst Ghana had 62% as the least. Talking about the Ten (10) steps to successful BF, Nigeria had 80% of the health workers who followed up with adequate knowledge; Ghana had 50%, Zimbabwe had 35% as the least. The same assessment showed that Ghana had 88% representing the greatest percentage of health professionals who were able to demonstrate breastfeeding options. It was concluded that inadequate knowledge, information and skills in demonstration of health workers resulted from inadequate support coming from their health facility management. In the same vein, the study gave credence to the fact that knowledge of majority of mothers as to why baby may not obtain breast milk as well as the factors that facilitate increased flow of breast milk were inadequate. It was undeniable therefore, that these mothers were likely to give mixed feeds reasoning that enough breast milk could not be produced for their babies. It was also evident that greater numbers of the mothers were ignorant about the mode of prevention of HIV transmission from mother to child (MTCT) during exclusive breastfeeding (Lucas, Morley, Cole, Lister, Leeson-Payne, 1992).

Another randomized, multicenter, controlled trial of 777 infants with a BW of < 1850 g, feeding human milk versus formula, found a reduction in the development of allergic symptoms in preterm infants fed human milk, with a strong family history of atopy ( $P < 0.01$ ). Preterm infants may also be protected from infection through the enteromammary immune system. The mother produces sIgA antibodies when she is exposed to foreign antigens. The infant receives passive immunity by ingesting the milk containing the specific sIgA antibody. While this system is active in full-term infants, the extent to which the enteromammary system functions in the

Low Birth Weight-infant-mother dyad is unknown. Nursery policies that advocate early skin-to-skin contact aid in activating the host defense system of the preterm infant by exposing mothers to the pathogens in the infant's immediate environment (UNICEF, 2012).

Children who were born at Very Low Birth Weight have poorer cognitive function and academic performance than normal-birth weight controls. The long-term effect of nutrition in early infancy on later neuro-developmental outcomes remains controversial. Possible explanations for the role of human milk in supporting neurodevelopment include the high concentration of long-chain polyunsaturates such as arachidonic and docosahexaenoic acid. A study conducted by Lucas et'al, 1992) on Breast milk and subsequent intelligence quotient in children born preterm on malnourished infants in developing countries. A prospective, nonrandomized study (n = 300 former preterm infants; Birth Weight < 1850 g) compared IQ scores in children 7.5 to 8 years of age who had received either human milk or formula during their hospitalization. After adjusting for specific social and educational factors, the children who received human milk had significantly higher scores (an 8.3 IQ advantage,  $P < 0.0001$ ) on the Weschler Intelligence Scales for Children-Revised. A dose-response relationship between the proportion of mother's milk and intelligence was also noted.

A meta-analysis by Anderson J. W., Johnstone B. M., Remley D. T. (1999) on Breastfeeding and cognitive development, of 20 studies indicated that LBW infants had greater benefits in cognitive development from being fed human milk (n = 1294) compared to those fed formula (n = 751). For LBW infants, the combined analysis of 6 studies showed a significant ( $P < 0.001$ ) advantage of 5.18 points in the cognitive development score in infants fed human milk compared to formula. A limitation of this analysis was the difference in measured and unmeasured cofactors

in the studies reviewed, which may account for 2.4 points in the developmental score. Because nutritional studies of Very Low Birth Weight infants are fraught with confounding variables, further research is required to identify factors specific to Very Low Birth Weight infants, who are most vulnerable to negative developmental sequelae.

## 1.6 Discussion

According to the United Nations Children Fund (UNICEF) 2013 publication, the most crucial time to meet a child's nutritional requirements is in the 1,000 days including the period of pregnancy and ending with the child's second birthday. During this time, the child has increased nutritional needs to support rapid growth and development, is more susceptible to infections, has heightened sensitivity to biological programming - [Biological programming refers to the process by which exposure to a stimulus or insult during a critical period of development can change the predisposition to developing disease, with long-term consequences] - and is totally dependent on others for nutrition, care and social interactions. If both the short-and long-term consequences are to be avoided in the causal matrix of under-nutrition, an important underlying determinant is care provided to the child. There is increasing awareness that cultural and behavioural practices with regard to child rearing practices influence child nutrition. Availability of resources to the caregiver for its implementation is therefore imperative. These resources include knowledge and beliefs about child rearing, the health and nutritional status of the care provider, control of resources and/or autonomy for child care (these include decision making role and employment of caregiver), workload and time constraints for providing child care and social support (these include availability of alternate caregivers, sharing of workload, father's role in child care and community support). The growth and nutritional outcomes of children is dependent on a complex relationship between the intrinsic characteristics of the child and the

competence of the mother in providing child care. Zeitlin, Ghassemi and Mansour (1990) proposed that healthy, adaptable children may grow well and thrive even in the absence of good care, while extremely good care is required for the smallest and weakest children (low birth weight, those with poor appetites). Several studies have demonstrated that early initiation of breastfeeding reduces the risk of neonatal mortality. Colostrum, the rich milk produced by the mother during the first few days after delivery, provides essential nutrients as well as antibodies to boost the baby's immune system, thus reducing the likelihood of death in the neonatal period. Beyond saving lives, early initiation of breastfeeding promotes stronger uterine contractions, reducing the likelihood of uterine bleeding. It also reduces the risk of hypothermia, improves bonding between mother and child and promotes early milk production. Breastfeeding for the first few years of life protects children from infection, provides an ideal source of nutrients, and is economical and safe. However, many mothers stop breastfeeding too soon and there are often pressures to switch to infant formula, which can contribute to growth faltering and micronutrient malnutrition and is unsafe if clean water is not readily available.

Adequate nutrition, beginning in the prenatal period (probably earlier) and extending through childhood is essential for children's health and development. Advances in developmental neuroscience have documented not only the impacts that nutritional deficiencies can have on brain structure, functioning, and behavior, but also the impacts (positive and negative) that environmental interactions and opportunities can have. Consequently, our understanding of how nutrition is related to children's development now extends beyond calories and proteins to include the essential roles that micronutrients have on brain development and functioning, and ultimately on children's cognitive and socio-emotional development. Collaborations between psychologists and nutritionists have strengthened and models linking nutrition and child

development now routinely include specific micronutrients (e.g., iron) along with considerations of caregiver sensitivity and family and environmental conditions. We have learned that children require both healthy nutrition and an interactive, responsive social environment to facilitate early development.

### **Stimulation**

In 2009, the Responsive Feeding and Care for Growth and Development Consortium was formed to focus on how caregiver-child interactions are related to the development of healthy eating patterns (Grantham-McGregor, 2007). The concept of responsive feeding has origins in Baumrind's theory of parenting styles, as applied to caregiver-child interactions during feeding. Although the provision of healthy, micronutrient-rich food is essential, children's growth is also influenced by responsive feeding, defined by the context in which feeding occurs, the interaction between the caregiver and child (particularly in response to food refusals), and the promotion of children's autonomy. These concepts have been applied to situations where children experience aberrant growth – both under-nutrition and overweight. In both situations, principles of responsive feeding, parenting and early child development, together with nutrient intake, play primary roles in facilitating healthy mealtime behavior and growth.

Child Development: the process of change in which a child comes to master more and more complex levels of physical activity, thinking, feeling, communicating and interactions with people and objects. This is sometimes expressed as physical, cognitive, emotional and social development. The first three years are the most important in a child's life. It is during this period that the brain is most plastic, grows fastest and is most responsive to the outside world. Most of the brain's neural pathways supporting communication, understanding, social development and emotional well-being grow rapidly in these first three years. One reason for poor brain growth is

malnutrition. Children who have been severely malnourished as infants do less well at school; have less chance of doing productive work and forming healthy relationships. They are also more vulnerable to physical and mental illness (Grantham-McGregor, 2007). Growth and development are complementary but not the same: For example, if the child's muscles do not grow they cannot develop the physical skill to run and play. If the child's muscles grow, but no one plays with them or shows them what to do, they still will not learn the game. To grow and develop, children also need care, responsiveness and stimulation. The environment in which a child grows up literally sculpts the brain. When a parent responds quickly to a baby in a warm and loving way, the baby learns that their needs will be met. She feels secure and loved. When a mother sings or talks to her baby, even before he can talk, the baby learns to communicate back. When a father encourages a child's interest and curiosity in the world, the child reaches out to learn more. All of these activities are what is called stimulation. Deficiencies in stimulation, and in the quality of the caring relationship experienced by the child in this critical period of life, will stunt their emotional, social, physical and cognitive development WHO (1999). There is also evidence that when a young child experiences severe, frequent, or prolonged adversity without adult support, the prolonged activation of the stress response can disrupt brain development. National Scientific Council on the Developing Child, (2010).

### **Play**

Play is the main component of early childhood stimulation and central to good mother-child interaction. Play is an opportunity for all the significant activities that enhance good development to take place. Play demands attention and concentration. It develops problem solving, decision making and learning skills. Play enhances relationships, both with parents and other children. Children learn how to take turns and cooperate, learn rules, negotiate and resolve conflicts.

### 1.7 Conclusion

Studies have shown that feeding with appropriate, adequate and safe complementary foods from the age of 6 months onwards leads to better health and growth outcomes (Martorell, and Reynaldo, 2010). Breast milk remains an important source of nutrients, and it is recommended that breastfeeding continue until children reach 2 years of age. In vulnerable populations especially, good complementary feeding practices have been shown to reduce stunting markedly and rapidly. The problem of poor quality of complementary food has been underemphasized in nutrition programming for quite some time. However, children may not receive safe and appropriate complementary foods at the right age, may not be fed at the right frequency or may receive food of inadequate quality (Ross and Desai, 2005). There is, therefore, sufficient reason to both prevent and appropriately manage malnutrition in early childhood if both the short-and long-term consequences are to be avoided. In the causal matrix of under-nutrition, an important underlying determinant is care provided to the child. There is increasing awareness that cultural and behavioural practices with regard to child rearing practices influence child nutrition.

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