

IMPROVING THE NUTRITION OF THE NIGERIAN CHILD THROUGH DIETARY MODIFICATIONS

BY

PROFESSOR ADENIKE ADDO

DEPARTMENT OF NUTRITION AND DIETETICS
UNIVERSITY OF AGRICULTURE
ABEOKUTA

Being paper presented at a Seminar on

CHILD NUTRITION

By

West Africa Milk Company (Nigeria) PLC.
Plot 7B, ACME Road, Ikeja Industrial Estate,
Ogba, Lagos

On

Monday 18th April 2005

INTRODUCTION

I appreciate the opportunity given me by WAMCO to share publicly my concerns, and hope for a better society in the area of child nutrition. The children of this nation make up forty seven percent (47%) of the total population and many of them are chronically hungry and malnourished. A child is any human being younger than eighteen years of age. One measure of a society is how prepared its children are for the future, Nutrition plays an important role in child's development of a healthy lifestyle and therefore a pivotal in whether the child reaches optimum growth and development. A child has the right to life, survival, development and active participation in the promotion of his or her right. Following the world summit for children organised by UNICEF between 29th and 30th September, 1990, the rights of the child were developed by the UN Convention, Currently over 178 countries including Nigeria have ratified the convention.

These rights are ten but that which is relevant to our discussion today is number 8 which states that 'every child is entitled to good health protection from illness, proper medical attention for survival, personal growth and survival. Within the framework of international law, the right to adequate food has been recognized as a human right in a variety of instruments.

Article 25(1) of the universal declaration of Human rights in 1948 provides that everyone has the right to a standard of living adequate for the health and well being of himself and his family including food. As articulated by the United Nation World Food Conference in 1974, everyman, woman and child has the inalienable right to be free from hunger and malnutrition in order to develop fully and maintain their physical and mental faculties. Also, specifically for the African child Article 14 of the charter on the right and welfare of the African child states that "every child shall have the right to enjoy the best state of physical, mental, and spiritual health whose strategy include assurance of provision of adequate nutrition. Although freedom from hunger is declared a fundamental human right for everyone yet many people grow hungry and cannot obtain the effective food demanded for survival.

Various nutrition surveys have demonstrated the existence of hunger and malnutrition in Nigerian children (1-6). Undernutrition and micronutrient deficiency are the major forms of malnutrition in the Nigerian children. Nutritional deficiencies contribute to the high rates of morbidity, mortality and disability in Nigeria.

Malnutrition in the early years of life while the brain is in its period of rapid growth can have a serious effect on intellectual development either directly by damaging the central nervous system or indirectly through its deleterious effects on responsiveness to stimuli and interference with learning. In particular stunting which is widespread among children in Nigeria is known to be associated with diminished cognitive development. Height for age has been found to be a good predictor of mental performance with stunted children performing poorly on various scholastic aptitude tests. Wasting was also correlated with poor scores although less so than in the case of stunting (8)

The objectives of this paper are: -

1. To examine the state of world child nutrition.
2. To examine the nutrition and food consumption of the Nigerian child.
3. To identify the causes of malnutrition.
4. To appraise the role of change agents in improving child nutrition.
5. To propose dietary modifications for improved child nutrition.
6. To project dairy foods importance in the diet of children.

THE STATE OF WORLD CHILD NUTRITION

The magnitude of child malnutrition in the world is presented in Table I. When translated into numbers in 2005 about 165 million children are stunted in developing countries, 140million are underweight and 47 million are wasted. (9). Between 1990 and 2005 there has been a shifting locus in global distribution of underweight preschoolers. There has been an increase in the number of underweight preschoolers in Africa from 16% to 27% while there has been a decrease in Asia and Latin American countries. In Nigeria there has been an increase in the percentage of stunting from 33.5% to 42.0% although levels of

wasting and underweight have decreased. The global prevalence of vitamin A and iodine deficiencies are presented in Tables 2 and 3.

Figure 1 presents prevalence of anemia by WHO region. With regard to preschool children, anaemia prevalence is the highest in Africa and Asia. In Africa the middle part of the continent from the west to the east is the most affected, with anaemia prevalence ranging from 42% to 53%, in Asia the affected sub region is south central Asia. In the Americas the Caribbean is most affected with a prevalence of 39% while anaemia prevalence in South and Central America are similar to those observed in the remaining parts of Africa and Asia. Among industrialized countries anaemia prevalence are lowest in Northern Europe (2%) and around 5% in Western Europe and North America.

Because of its magnitude, its catastrophic impact on child survival and development, and the fact that it often results from international political and economic crises, malnutrition is one of the most significant global problems of the day. In order to resolve this problem, human and material resources must be mobilized at all levels.

NUTRITION AND FOOD CONSUMPTION OF THE NIGERIAN CHILD

A number of nutrition studies have been conducted among Nigerian children and the results show that undernutrition characterized by stunting, wasting and underweight affects substantial proportion of the children. Severe Vitamin A, iodine and iron deficiencies were also reported among the children. The most recent nutrition and food consumption survey in Nigeria (2001-2003) indicate a high level of protein energy malnutrition (figure 2) and varying levels of micro nutrient deficiencies (figure 3 and 4). Socio economic status affects nutrient intake both quantitatively and qualitatively. A total of 27.5% of the children suffered various degrees of iodine deficiency while 46.5% had more than adequate level. One of the key factors leading the under nutrition is inadequate consumption of protein and energy.

CAUSES OF MALNUTRITION

Malnutrition and death of children are the results of a long sequence of interlinked events, Figure 5 shows UNICEF conceptual framework for the causes of malnutrition and death. The framework emphasizes the potential multi-sectoral nature of the nutrition problem.

Inadequate dietary intake and disease are the most significant immediate causes of malnutrition. Disease, in particular infectious diseases affect dietary intake and nutrient utilization.

The 1993 PIC survey reported a sub-optimal intake of protein among children in South-West, North-west and North-east Nigeria. A supplementary study also showed that only 26.6% of under-5 children met their recommended dietary allowance for energy while 18.5% were severely deficient. Food poverty judged by calorie intake below the recommended dietary allowance was wide spread among Nigerian children.

The high prevalence of stunting in Nigerian children is as indication of long standing dietary deficiency. In addition to poor feeding practices and short fall in food intake, conditions such as diarrhoea can result in sharp reduction in the absorption of essential nutrient, while malnutrition reduces resistance to disease potentially creating a vicious cycle that can be extremely dangerous to young children. Nutritional deficiencies can also have a synergistic relationship with other key illnesses affecting children such as malaria, acute respiratory tract infections and measles.

The underlying causes of malnutrition and death can be numerous and are usually interrelated. This include insufficient household, food security, lack of or low utilization of health services, inadequate water supplies and sanitary facilities, food hygiene or inadequate childcare. These underlying causes can be considered as insufficient fulfillment of specific basic needs of children and women. Inadequate or improper education, particularly of women is often an underlying cause of malnutrition. It exacerbates their inability to generate resources for improved nutrition of their families. Most underlying causes are themselves the result of the unequal distribution of resource in society. Formal

and informal institutions play an important role as the interface between underlying and basic causes as they provide basic services or promote improved practices regarding food production and childcare.

The most recent nutrition and food consumption and survey established an association between food security in terms of availability and affordability and the nutritional status of children. While the frequency of consumption of the major staples was high across the zones, the consumption of dairy products, meat and fish was low nationally. The study also established that malaria was the most prevalent disease while diarrhoea, measles and whooping cough were also reported. The nutrient-depleting nature of measles predisposes children to severe/clinical malnutrition. The magnitude of malnutrition in this survey deserves urgent attention knowing the consequence of malnutrition as it affects survival and health, education and the economy of the nation.

ROLE OF CHANGE AGENTS IN IMPROVING CHILD NUTRITION

International Level

Malnutrition is one of the most global problems of the day, which requires mobilization of human and material resources at all levels. UNICEF nutrition goals for the 1990's can be divided into the following two categories: -

- a. The control of protein-energy malnutrition
- b. The control of micro nutrient deficiencies.

These goals are designed to reduce malnutrition at the global levels.

The millennium development goals adopted by the United Nations shows how good nutrition under pins progress towards each of the first six MDGs, Goal 1 target 2 states “ Halve between 1990 and 2015, the proportion of people who suffer from hunger”.

The indicators are:-

- a. Prevalence of under weight children (under 5 year of age). (UNICEF, WHO).
- b. Proportion of population below minimum of dietary energy consumption (FAO)

2. Achieve universal primary education goal
3. Promote gender equality and empower women.
4. Reduce child mortality
5. Improve maternal health.
6. Combat HIV/AIDS, malaria and other diseases.

These goals are to be monitored by the various UN agencies such as UNICEF, WHO, ILO, UNAIDS, IPU and UNESCO.

NATIONAL LEVELS

The Federal governments' resolve to reduce malnutrition has been well documented in the National policy on Food and Nutrition in Nigeria.

The overall goal of the policy is to improve the nutritional status of all Nigerians with particular emphasis on the most vulnerable groups that is children, women and elderly. Using a multi-sectoral approach, the strategies would include improving food security, enhancing care giving capacity as well as improving the provision of human services such as health care, environmental sanitation, education and community development.

There has been tremendous international assistance through multilateral and bilateral organization to the development of agriculture, food and nutrition, health, and other related sectors of the Nigerian economy.

ii. The assistance is often in the form of resource directed as the implementation of key programme planned by the agencies. Such organization include FAO, WHO, UNICEF, World Bank, UNDP.

HOUSEHOLD LEVEL

The woman is the central figure for participating in development programmes meant to elevate the nutritional status of family. Empowerment of women and children through formal and non-formal education allows them to participate actively in maintaining nutrition security at household level. Parents and other caregivers play a central role in teaching by example. Parents who are informed and employed are less likely to have malnourished children. Studies in

Zaria, Abeokuta and Ibadan have shown an association between maternal nutritional knowledge and the incidence of childhood malnutrition, while low level of nutritional knowledge accounted for poor feeding practices in children, some mothers with adequate nutritional knowledge also had poorly fed children, an indication of a gap between knowledge and practices.

Educational Institution

Primary schools provide an attractive opportunity to reaching large number of children in the general population. By the time children enter into school they have acquired knowledge about eating and have developed food preferences. However, since they continue to eat daily food preferences, food acceptance patterns are continually modified. Schools are a critical component of the social environments that can shape children's food preferences and eating behaviours and can therefore play a powerful role in helping to improve children's diet. Primary school teachers have a great potential influence on child's health and nutrition than any other group outside the home.

Health care givers

The provision of health and nutrition education to patients in the hospital is a valuable venue for improving child nutrition.

Food industries

The production of highly nutrition's food which are marketed aggressively will create awareness and promote better nutrition.

DIETARY MODIFICATIONS FOR IMPROVED CHILD NUTRITION

(a) Food habits of children

Children learn about what to eat and why to eat and they receive reinforcement and incentives for eating from their families and the larger environment. Most of this learning occurs during children's routine mealtime experience in the absence of formal teaching. Adults need to repeatedly expose children to nutritious foods, provide them with

opportunities to learn to like rather than dislike nutritious foods that are more consistent with dietary guidelines.

Pre-school children vary in their food habits from day to day and from meal to meal. They like foods that are soft in texture; other favourites include beverages, snacks and fruits.

The pre-school years' are the best time for a child to start a healthful pattern of living and eating, focusing on regular physical activity and nutritious foods. Parents and other caregivers are role models. If they eat a variety of foods, the children, will eat a variety of food.

NUTRIENT REQUIREMENT OF CHILDREN

Table 4 shows the nutrient requirement of children. During the preschool years, growth is at a slower rate and this accounts for decreased appetite and changes in eating behaviour.

From nutrient recommendations we move on to food choice.

DIETARY MODIFICATION FOR IMPROVED CHILD NUTRITION

The following guidelines will ensure good child nutrition

1. Give diet that contains a variety of foods in adequate amounts.
2. Increase energy level of diet by addition of fat.
3. Serve foods 5-6 times daily.
4. Limit consumption of sweet foods.
5. Provide dark green leafy vegetable, fruits, cereals, legumes, tubers and foods of animal origin.
6. Continue feeding even when child is ill.

Figure 6 shows a food guide pyramid, which is applicable to Nigeria. The food guide pyramid represents a total diet providing sufficient protein; energy vitamins and minerals is widely advocated for diet planning. For children, teenagers, pregnant and breastfeeding women three servings of milk group are recommended due to higher calcium needs. The food guide pyramid incorporates the foundation of a healthy diet, variety, balance and moderation.

IMPORTANCE OF DAIRY FOODS IN THE DIET OF CHILDREN

Milk and other dairy foods are nutrient dense foods providing abundant amounts of protein, vitamins and minerals necessary for children's growth and development.

As estimated for 1997, dairy foods provided 72% of the calcium, 32% of the phosphorus, 26% of the riboflavin, 22% of the vitamin B12, 19% of the protein, 16% of the magnesium, 15% of the vitamin A, 9% of the vitamin B6 and 5% of the thiamin, in addition to appreciable amounts of

vitamin D and niacin equivalents available in the U.S food supply (13). Because milk and other dairy foods are nutrient dense foods, their intake improves the overall nutritional quality of children's diet (14,15) (Table 5).

In addition to supporting children's growth and development, dairy food nutrients such as calcium protein, magnesium, vitamin A and Vitamin K have a role in skeletal health (16) calcium is the most important nutrient to maximize the development of peak bone mass within an individual's genetic potential and for preventing and treating osteoporosis (17) Therefore it is critical that children consume sufficient dietary calcium during the crucial years of skeletal growth to optimize peak bone mass. Maximizing bone mass early in life not only helps to reduce bone loss and risk of osteoporosis in later years, but also protect against fractures in childhood and adolescence. Most dairy food or calcium intervention trials in growing children demonstrate a positive effect on mineral content or bone mineral density (16). Beneficial effect of school milk consumption on anthropometry has been demonstrated in Nigerian school children (18). Despite the demonstration of this benefit, dairy product consumption has remained low In Nigeria. This low intake of milk and other dairy foods is a major factor contributing to growing children's calcium shortage (14).

Factors influencing children's milk drinking behaviour include availability of soft drinks and competing beverages parents' milk drinking habits as well as the taste of milk itself. A new study shows that mothers who drink milk more often have young daughters who are milk drinkers and who consume fewer soft drinks

CONCLUSIONS

This paper has reviewed available evidence on global and national levels of child nutrition, and has concluded that it childhood malnutrition is one of the most significant global problems of the day. In order to resolve this problem, human and material resources must be mobilized at all levels.

Based on research evidence the causes of childhood malnutrition in Nigeria include food security, diseases, inadequate childcare and health practices. The magnitude of malnutrition in Nigerian is alarming and on the

increase. The most recent survey showed a 42% level of stunting in children and demonstrated. The existence of varying degrees of micro nutrient deficiencies has also been demonstrated. This paper has also appraised the role of change agents in improving child nutrition. Pivotal change agents include international institutions national, state and local governments, the woman at the household

Primary schoolteachers' health care givers as well the food industries. Dietary modification has been shown to improve child nutrition and this can be done by using the Food Based Dietary guidelines or the Food guide pyramid. Owing to the high level of protein energy malnutrition increased consumption of dairy products by children will ensure adequate protein and calcium intake. This will contribute to unproved health and nutrition of the Nigerian child.

REFERENCE

1. Addo A.A (1954) Assessment of nutritional status of urban pre school children in Northern Nigeria Nig. J. Nutr. Sc 4 (2) 131-141
2. Addo A.A. M.F. Kareem T.I. Sampson and C.L. Jubrini (1988) anthropometry and nutrient intake of Nigerians school children from different ecological zones. Ecol. Fd Nutr. 21:271-285
3. Nnanyelugo D.O. (1982) The incidence of latent protein - energy malnutrition among the under fives. Nig J. Nutr. Sc 3,11-24
4. Ahmadu Bello University Consultancy Service (1990) Food Security and Nutrition Report in Nigeria. The International Bank for reconstruction and development International Development Association
5. International Conference on Nutrition. FAO/WITO 1992. Nigerian Country Paper.
6. FGN/UNICEF (1994) The nutritional status of women and children in Nigeria Federal Government of Nigeria Abuja and UNICEF Lagos.
7. FGN/UNICEF (2001) Children's and women's rights in Nigeria: A wake-up call, situation assessment and analysis 2001 National Planning Commission Abuja and UNICEF Lagos
8. Akinmokun O.O. (1989) The impact of nutrition an intelligent performance of school age children in Ibadan PhD thesis. Department of Human Nutrition University of Ibadan, Ibadan.
9. Standing Committee on Nutrition (2004) Fifth report on the world nutrition situation. Nutrition for improved development outcomes. United Nations system.
10. Federal Government of Nigeria. National Policy on Food and Nutrition in Nigeria. National Planning Commission Abuja 2001
11. Federal Government of Nigeria (1992) Intertional Conference on Nutrition. Country report Nigeria NASENI Lagos.

12. Addo A.A. 1998. Freedom from hunger and malnutrition: an elusive right of the Nigerian child-Inaugural lecture delivered at the University of Agriculture Abeokuta July 29, 1998
13. Gerrior, S and L Benke, Nutrient content of the U.S Food supply 1909-97. Home Economics Research Report no 54, Washington D.C: U.S. Department of Agriculture, Centre for Nutrition Policy and Promotion, March 2001
14. Johnson R.K. C Panely and MQ Wang J. Child Nutr. Management 22: 95, 1998
15. Bellew C. S. kuester and C. Gulespie Arch. Pediatr. Adolosc. Med 154: 1148, 2000
16. Ilich, J. Z and J.E Kerstetter. J.An Coll. Nutr. 19:715, 2000
17. NIH Consensus Development Panel on Osteoporosis prevention, diagnosis and therapy. JAMA 285:785, 2001
18. Nnanyelugo D.O. Assessment of school milk consumption and its relationship to anthnopanetry of primary school children. Alimenticao Ntricao 3:55-63 1981
19. Maziya-Dixon B I. O Akinyele, E.B Oguntona, S. Nokoe, R.A. Sanusi and E. Harris-Nigeria Food Consumption and Nutrition Survey 2001-2003 ITTA 2004.