MALNUTRITION AND UNDER NUTRITION: TWO CONTEMPORARY HEALTH PROBLEMS IN NIGERIA

Joy-Telu Hamilton-Ekeke
Dept. of Science Education, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria.
joyhamilton@ndu.edu.ng; joytelu@yahoo.com

Abstract
The several economic reforms in Nigeria since 1986 beginning with the Structural Adjustment Program (SAP) marked the beginning of a considerable decrease in real income and an unparalleled increase in food prices. These various economic reforms, over the years have stimulated reduced food consumption in Nigerian households leading to under-nutrition (reduced quantity of food consumed), particularly that of nutritious foods, (inadequate diet) and an increase in malnutrition (not consuming sufficient or all the nutrients necessary for the proper functioning of the body). The shrinking of funds to both the educational and health sectors also contributed greatly to the almost complete destruction of school nutrition programmes (school meals) and nutrition oriented health delivery services (hospital meals). Different surveys of nutritional assessment in Nigeria reveal low intakes of protein, energy, iron, calcium, zinc, thiamin, and riboflavin in almost all age groups and in both sexes. The underlying causes of malnutrition in Nigeria are poverty, inadequate food production, inadequate food intake, ignorance, poor food preservation techniques, improper preparation of foods, food restrictions and taboos, and poor sanitation; while the main cause of under-nutrition is poverty. Economic reforms will likely continue irrespective of the government of the day, so Nigeria really needs sustainable remedies to alleviate under-nutrition. Recommended remedial programmes which support food production and preservation; integrating nutrition education in primary health care programmes; and in educational curricula are ways forward in curbing malnutrition and under-nutrition.

Key words: *Malnutrition, Under-nutrition, Health problem, Nigeria, Food production, Nutrients*

Introduction
Nigeria is Africa's most populous country, with a population of 171 million, including 40 million children (UNICEF, 2017). Over half the population lives in poverty. Maternal, child and infant mortality rates remain among the world's highest (UNICEF, 2017). The main causes of infant and child deaths are pneumonia, diarrhoea, malaria and neonatal causes. There have been improvements in child nutrition, but malnutrition remains a major concern. Nigeria is also home to the highest number of stunted children in the continent and ranks third globally with more than 10 million stunted children (*Nigeria Demographic Health Survey (DHS)*, 2008). Nigeria is one of six countries that

account for half of all child deaths worldwide (Black, Allen, Bhutta, Caulfield, De Onis, Ezzati, Mathers and Rivera, (2008), with 1 million children under five dying every year. Malnutrition contributes to over one-third (35%) of those deaths (*Federal Ministry of Health*, 2011). The magnitude of the problem must be met with a response that scales the gravity of the situation.

Children who are undernourished have lower resistance to infection and are more likely to die from common childhood ailments such as malaria, diarrhoeal diseases or respiratory infections. In Nigeria, it is estimated that malnutrition contributes to over 50% to mortality among children aged under-five years (Jaulmes and Njoku, (2006)). Apart from poor feeding practices and shortfalls in food intake, micronutrient deficiency is a direct cause of child morbidity and mortality. Micronutrients such as iron, iodine, vitamin A, are necessary for the healthy development of children. Their absence in the diet cause serious disorders. For example, a lack of sufficient iodine can lead to goiter, hypothyroidism, mental and physical impairment. Damages due to iodine deficiency can be avoided by ensuring that the salt used in households is iodized.

Disparities in malnutrition related to various background characteristics are significant in Nigeria, but are often more pronounced for stunting. Children from rural areas are almost twice more likely to be stunted (chronically malnourished or low for height of age) than children from urban areas. A child whose mother has no education is four times more likely to be stunted than a child whose mother has secondary or higher education (Igbedioh, 1993; Anita, Flora, Bhadmus and Kwetishe, 2014). Children from the poorest households are also four times more likely to be stunted than children from wealthiest households (UNICEF Unite for Children, 2016). Geographic disparities related to malnutrition are significant too. Children from the North-West and North-East geopolitical zones are more at risk of malnutrition than children from other geopolitical zones (UNICEF Unite for Children, 2016). This is not surprising viewing from the background that the North produce more food than the South but the knowledge of the combination of food items rich in the various nutrients to make up a balanced diet is lacking which then leads to the high rate of malnutrition. Underweight prevalence in those two zones is nearly four times higher than in the three Southern Zones (Save the Children, 2015). Results are similar for stunting and wasting prevalence. Save the Children (2015) reported that eight States from the North-West and North-East zones - Yobe, Katsina, Zamfara, Jigawa, Bauchi, Gombe, Kebbi and Kano – have more than half of children under 5 years stunted and one in every three is severely stunted. It was further stated that in 2013, there was a peak of wasting (acutely malnourished or low for weight of age) prevalence in two States – Kaduna and Kano – where 40 per cent of children were wasted and 25 per cent were severely wasted (Save the Children, 2015).

The Problem of Malnutrition and Under-Nutrition in Nigeria

Malnutrition is the condition that results from an imbalance between dietary intake and requirements. It includes under nutrition, which results from less food intake and hard physical work and over nutrition results from excess food intake and less physical activities. A staggering 41% of all children under five in Nigeria are chronically malnourished, 23% are underweight, and 14% suffer from acute malnutrition. In the northern region the statistics are even more alarming with more than half of all children stunted (Save the Children UK Project on Child Malnutrition in Northern Nigeria, 2015). This problem is also present in some pockets in the South.

An adequate supply of nutrients is needed to maintain all the functions of the body and daily activities at maximum efficiency, thus ensuring healthy living. Health and nutrition are closely linked and to ensure proper development and life quality they must be adequate from early childhood. The most vulnerable groups are infants, young children, pregnant women and lactating mothers. Malnutrition does not need to be severe to pose a threat to survival. Worldwide, fewer than 20% of deaths associated with childhood malnutrition involve severe malnutrition; more than 80% involve only mild or moderate malnutrition. Human beings need food to provide energy for the essential physiological functions like: respiration; circulation; digestion; metabolism; maintaining body temperature; growth and repair body tissues.

Causes and Consequences of Poor Nutrition

Causes and consequences of poor nutrition are better understood now, and so are the ways to prevent and manage it. Many children do not get enough of the right food to eat (Nigeria Demographic Health Survey NDHS, 2013). They do not grow well, they become ill, many die or they do not grow up as clever, and as healthy (Ekwochi, Osuorah, Odetunde, Egbonu and Ezechukwu, (2014). Low food intake and infections are the immediate causes of malnutrition. The underlying causes are insufficient household food security, inadequate childcare and insufficient basic health services in the community (UNICEF, 2013; Horton and Steckel, 2013). It includes poor living conditions, lack of education, heavy physical work, and frequent childbearing. And the basic causes are economic structure (in the form of economic reform somersaults), political and ideological superstructure (no continuity of government plans and policies).

Other causes of malnutrition are the lack of knowledge in selecting foodstuff with high nutritive value, hence the disparity of malnutrition across household of differing levels of education of the mothers (Kutu-Shittu, Onabanjo, Fadare and Oyeyemi, 2016); poverty and infectious diseases; drought; uneven distribution of the available foods; social unrest and civil conflicts; transport

problems (inaccessibility); increased populations; inadequate weaning; farming technique-insufficient; poor management of resources; topographical differences in different regions (variation in productivity); loss of food through destruction by insects; exploited land due to planting the same type of food crop for many years, erosion because of overgrazing etc.

Some of the consequences of malnutrition are down to religious and cultural practices which are inimical to good nutrition. For instance, during period of fasting important nutrients are not eaten, such as: milk, eggs, butter, meat, fish, meal pattern, etc. Pork is forbidden for religious and cultural reasons. Lack of sunlight (lack of Vitamin D) during infancy to protect the child from the "evil eyes"; discrimination in feeding among family members, adults before children, adult males over adult females; practising heavy meals once, may be twice a day; delay to start complementary food; refusing to give the child meat for fear of infection; feeding children with diluted milk; feed children with leftover and which may be contaminated food (Edris, 2004).

Nordqvist (2013) reported that a team of experts led by Professor Robert Black of the Department of International Health at the Johns Hopkins Bloomberg School of Public Health (*Robert* E. *Black*, M.D., M.P.H. is the Edgar Berman Professor and Chair of the Department of International Health and Director of the Institute for International Programs of the Johns Hopkins Bloomberg School of Public Health in Baltimore, Maryland), analyzed the true extent of global malnutrition, as well as the factors that cause it, and to develop a new framework for prevention and treatment (Black, 2012). The study revealed that the first 1,000 days of a child's life, from the day they are born until they are nearly three, impact on not only their future health, but also a nation's economic advancement. This is very true as a nation with high children mortality and morbidity will be losing money on health care and its citizenry will be impoverish spending household income on health care bills (Hamilton-Ekeke, 2017). Even though some progress has been achieved over recent years, the researchers believe that up to 900,000 deaths could be prevented if proven interventions are scaled-up.

School Feeding and Hospital Meals

School feeding (provision of food to school-children) and hospital meals (provision of food to patients on admission in health facilities) are two ways in which micronutrient malnutrition can be reduced. This is imperative as studies on nutritional status in Nigeria shows gross deficiencies in micronutrient malnutrition (Kutu-Shittu, *et al.*, 2016). Different surveys of nutritional assessment in Nigeria reveal low intakes of protein, energy, iron, calcium, zinc, thiamin, and riboflavin in almost all age groups and in both sexes (UNICEF, 2011). Different countries have different objectives for school feeding

programme based on their own goals. However, to achieve multiple benefits, the programme design must correspond to its objectives. Thus, programmes are classified based on their modalities, including in-school feeding, where foods are given to children in the school, or take-home rations, where parents are given food because their children attend school. School feeding programmes have been an integral part of child welfare in developed countries like the United Kingdom and even Brazil which is not usually seen as developed country, have school feeding programmes as far back as 1906 and 1955 respectively. Nigeria, like most developing countries, practises in-school feeding programmes that provide children with breakfast, lunch, or a combination of the two. The Structural Adjustment Programme (SAP) of 1986 which shrunk funding to both education and health sectors brought the demise of in-school feeding. In-school feeding today has been politicised with some states claiming to have resurrected it which is more or less a far cry from what it was before 1986.

To improve the nutritional status of school children, the federal government launched the Home-Grown School Feeding and Health Programme in September 2005 in Abuja, under the coordination of the Ministry of Education. The aim of the programme was to provide a nutritionally adequate meal during the school day. The pilot phase (Sept 2005–July 2006) involved 12 states and the federal capital territory in the six geopolitical zones. The multisectoral programme had the following objectives: (1) to alleviate short-term hunger; (2) to increase attendance, retention, and completion of basic schooling; (3) to reduce gender inequalities in education; and (4) to improve health and nutritional status of students (Yunusa, Gumel, Adegbusi and Adegbusi, (2012).

In addition to the above objectives, the school feeding programme can have multiplier effects on other sectors if properly implemented. For instance, it can create markets for poor farmers as has been the case in Brazil, where the second largest school feeding programme in the world has provided a stable market to family farmers in the country (Akinyele, Maziya-Dixon, Ajayi, Aminu, Oguntona, Omotola, Adams and Sanusi, 2002). Countries where school feeding programmes are being implemented have recorded increased attendance and enrollment rates in addition to a positive effect on nutritional status among school children (Agunbiade and Ogunleye, 2010.). Unfortunately, most Nigerian states could not sustain the programme, probably due to the cross-sectoral responsibilities in programme delivery.

Falade, Otemuyiwa, Oluwasola, Oladipo and Adewusi (2012) conducted a survey of daily food intake by the school children in Osun State and reported that the children were given food like rice as breakfast, *garri* (a cassava product) and groundnut as lunch, and *eba* (another cassava meal) or *amala* (yam flour meal) with okra soup as supper. They therefore suggested that food should be

complemented with more legumes and animal proteins in order to achieve the objective of improved health and nutritional status for students. This has been the worries of nutritionists about school meals if not planned by professionals. Its aim of complementing nutritional values is defeated.

Proposed Intervention as a Way Forward

In recent years Nigeria has developed a number of policies to tackle these issues of malnutrition and under-nutrition, such as the National Policy on Food and Nutrition with its Plan of Action, as well as the National Policy on Infant and Young Child Feeding. However, implementation has been weak with insufficient political support to transform policy around improving nutrition into practice. Agencies and Non-Governmental Organisations (NGOs) are supporting the Ministry of Health to treat children suffering from malnutrition, but more is needed to scale-up this vital work, as well as to tackle the root causes of malnutrition.

This article is proposing an intervention tagged Essential Nutrition Action (ENA) Approach as a way forward in tackling the menace of malnutrition which usually affects young children below the age of five, but before the description of the proposed approach, it is essential to note that there are five principal mechanisms through which interventions on nutrition may work. These are: availability of food at local or regional level - making the required foods more available with respect to place and time; accessibility to food and availability of foodstuff at the household level - making the required foods more accessible and available to the households; food utilisation at household level - making better use of available foods; food processing such as fermentation, preparing weaning food; intra household distribution of food supplementation; and education on physiological utilisation of food - health service activities and environmental sanitation.

Essential Nutrition Actions (ENA) Approach: This is an action oriented approach to nutrition which consists of seven essential actions and six contact points. The seven essential action areas are:

1. *Promotion of breastfeeding:* The key message in action one is timely initiation of breastfeeding (1 hour of birth); exclusive breastfeeding until six months; breastfeed day and night at least 10 times; correct positioning and attachment; empty one breast before switching to the other.

2. *Appropriate complementary feeding:* The key message in action two is the introduction of appropriate complementary foods at 6 months; continue breastfeeding until 24 months and more; increase the number of

feeding with age; increase density, quantity and variety with age; responsive feeding; ensure good hygiene (use clean water, food and utensils)

3. *Feeding of the sick child:* The key message in action three is increase breastfeeding and complementary feeding during and after illness; appropriate therapeutic feeding.

4. *Women's nutrition:* The key message in action four is that there should be increase feeding during pregnancy and lactation; iron/folic acid supplementations; treatment and prevention of malaria; de-worming during pregnancy; vitamin A capsule after delivery should be given.

5. *Control of vitamin A deficiency:* The key message in action five is the promotion of breastfeeding as a source of vitamin A; consumption of Vitamin A rich foods; maternal supplementation; child supplementation and food fortification.

6. *Control of anemia:* The key message in action six is the supplementation of women and children with iron rich foods and fortifications; de-worming for pregnant women and children (Twice/year); malaria control.

7. *Control of iodine deficiency disorders:* The key message in action seven is the access and consumption by all families of iodized salt.

Need to Integrate Essential Nutrition Action (ENA) into Other Sectors

The role of knowledge in curbing malnutrition cannot be over emphasised. The knowledge of combination of food nutrients of carbohydrate, protein, fat, vitamin, mineral and fibre in their right proportion to make a balanced/adequate diet is essential in the curbing of malnutrition, stunting and wasting. This knowledge should be more with the mothers who are mostly in charge of the meals at home. The six contact points of the proposed Essential Nutrition Action (ENA) Approach are:

1. a) Schools feeding; b) De-worming; c) Iron supplementation;
2. a) Agriculture, food diversification; b) Food security; c) Women's farmers clubs
3. a) Emergency women to women support
4. a) Sanitation, clean water & sanitation; b) Public health education; c) Prevention of diarrhoea, malaria
5. a) Micro-credit, income generation; b)

6. Nutrition education

Conclusion

There is a need for urgent and sustained action. Without action to increase, add to, and scale up existing interventions to address the causes of malnutrition, children will continue to die or suffer the effects for the rest of their lives. Current efforts underway to treat malnutrition must be intensified, but bringing sustainable reductions in child malnutrition requires an integrated package of measures that tackle both the causes and effects of malnutrition, backed up by strong political and institutional support**.** There is a need to develop effective models/approaches that can be brought to scale and integrated into the healthcare as well as educational system in a sustainable way. At the same time, the underlying causes of malnutrition must be recognised and tackled to reduce both chronic and acute malnutrition. Evidence-based advocacy from effective programmes will be an important tool to leverage resources from the government and donors to increase interventions to treat and prevent malnutrition. The proposed ENA in this write up is an essential step in the right direction.

The 1,000 day period which is the start of a woman's pregnancy until her child's second birthday represents a critical window of opportunity to avert malnutrition in children. Adequate nutrition during this period can avert malnutrition, ensuring that children have the best possible opportunity to grow, learn, and rise out of poverty. When nutrition is not optimised during the 1,000 day window, the effects are often irreversible. The most visible evidence of good nutrition is a taller, stronger, healthier child who learns more in school and become productive, happy adults who participate in society. Proper nutrition is essential for healthy development and encouraging, educating and providing people with healthy food are key for addressing global malnutrition.

The following recommendations are made:

1. The Essential Nutrition Actions (ENA) Approach should be included in the curricula of all health science students.
2. Increase the incomes of the poor so they can afford to buy nutritious foods: without an increase in purchasing power, households cannot access a nutritionally adequate diet. Improving understanding of the nutritional needs of mothers and infants alone will not lead to change if households cannot afford to purchase the necessary foods. Livelihoods must be promoted and protected to enable households to increase their incomes. Interventions to support livelihoods must include an analysis of gender roles and should be designed to increase women's control over resources. This support should be designed to increase access to nutritious foods and to enable women to have the time available to adequately feed themselves

and their children. Possible and inter-linked interventions for increasing incomes should include the following: Regular and/or seasonal cash transfers to cover at a minimum the cost gap of an adequate diet as well as of the cost of access to basic needs (such as healthcare, education costs, etc) for the very poor. Studies in other middle-income countries carried out by *Save the Children UK,* (2009) have shown that cash transfers can have a significant effect on increasing the consumption of an adequate diet. Cash transfers should be combined with livelihood promotion activities such as community-based savings and credit groups and agriculture and livestock interventions that include access to a nutritious diet as a key aim.

3. Improve infant and young child feeding practices: exclusive breastfeeding for the first six months of a child's life and appropriate complementary feeding. Awareness must be increased in communities, inclusive of women and men, on how to improve practices in order to help reduce child malnutrition.
4. Improve access to healthcare, water and sanitation: direct interventions are required to improve access to a healthy environment and to reduce morbidities associated with malnutrition. These include iron-folate supplementation for pregnant women, zinc supplement in the management of diarrhoea, vitamin A fortification or supplementation for children under five, hygiene promotion, improved access to safe drinking water in communities and institutions, and increased vaccination coverage.
5. Translate policy into practice: policies relating to nutrition and food security must be updated and translated into practice, backed by strong political and public support in order to maximise impact. For this to happen, adequate and efficient human and financial resources, policy coordination and delivery mechanisms must be put in place. There is a need for a multi-sector approach to malnutrition through improved partnership and coordination within and across government institutions, as well as with other stakeholders to ensure nutrition is put high on the agenda and translates into real change.
6. Accountability and monitoring: policy implementation, budget spending and programme interventions should be carefully monitored to ensure commitments to tackling child malnutrition are met and to produce evidence of the effectiveness of different interventions (including the one proposed in this paper) to determine which work best and which are the most cost-effective.

7. School meals and hospital meals should be brought back to all schools (primary and secondary) and also to all health facilities and should be managed by professionals to fill in the gap of nutrient deficiencies.

References

Agunbiade, O. M., & Ogunleye, O. V. 2010. Constraints to exclusive breastfeeding practice among breastfeeding mothers in Southwest Nigeria: Implications for scaling up." *International Breastfeeding Journal* 7 (5): 1–10.

Akinyele, I. O., B. Maziya-Dixon, O. A. Ajayi, F.T. Aminu, E. B. Oguntona, B. D. Omotola, L. Adams, R. A. Sanusi. 2002. Profile: Nutrition for national development in Nigeria: A call for action. Advocacy Tool Developed on the Consequences of Malnutrition in Nigeria." FGN/USAID.

Anita, D. A., Flora, K., Bhadmus, B. A. & Kwetishe, D. T. (2014). Mother education and nutrient intake of children ages 2–7 years in Lau local government area of Taraba State. *Journal of Science and Multidisciplinary Research* 6 (1): 111–118.

Black, R. E., Allen, L. H., Bhutta, Z. A., Caulfield, L. E., De Onis, M., Ezzati, M., Mathers, C., & Rivera, J. (2008). Maternal and child undernutrition study group. "Maternal and Child Undernutrition: Global and Regional Exposures and Health Consequences." *The Lancet* 371 (9608):243–260.

Black, R.E. (2012) Food Safety, Available at: https://www.who.int/foodsafety/areas_work/foodborne-diseases/ferg-members/black/en/Accessed 9th January, 2018

Edris, M. (2004). Nutrition for health extension workers, Ethiopia public health initiative: The Carter centre, Ethiopia Ministries of Health and Education

Ekwochi, U., Osuorah, D. I. C., Odetunde, O. I., Egbonu, I., & Ezechukwu, C. C. (2014). Prevalence of iron deficiency anaemia in anaemic under five children in Enugu South East Nigeria. *Nigerian Journal of Paediatrics* 41 (2): 129–132.

Falade, O. S., Otemuyiwa, I., Oluwasola, O., Oladipo, W., & Adewusi, S. A. (2012). School feeding programme in Nigeria: The nutritional status of pupils in a public primary school in Ile-Ife, Osun State, Nigeria. *Food and Nutrition Sciences* 3: 596.

Federal Ministry of Health (2011). Nutrition: Nigeria's silent crisis, Available at: http://www.fmh.org/Nigeria_malnutrition-factsheet accessed on the 3rd of May, 2018

Hamilton-Ekeke, J-T. (2017). The knowledge of disease prevention: A means of health cost reduction during economic recession, A paper presented at the 3rd International Conference of the Faculty of Education, Niger Delta University, Wilberforce Island, Bayelsa State, Theme: Education for Economic Recover, 7th – 10th August, 2017

Horton,S. & Steckel, R.H. (2013). Malnutrition: Global economic losses attributable to malnutrition 1900–2000 and projections to 2050," In *How much have*

global problems cost the world? A Scorecard From 1900 to 2050, B. Lomborg (Ed.) Cambridge: Cambridge University Press.

Igbedioh, S.O. (1993). Undernutrition in Nigeria: Dimension, causes and remedies for alleviation in a changing socio-economic environment *Nutrition Health,* 9(1):1-14

Jaulmes, C & Njoku, G. (2006). For every child health, education, equality, protection, UNICEF Information Sheet on Nutrition, available at: https://www.unicef.org/WCARO_Nigeria_Factsheets_Nutrition.html accessed on 30th April, 2018

Kuku-Shittu, O., Onabanjo, O., Fadare, O. & Oyeyemi, M. (2016). Child malnutrition in Nigeria: Evidence from Kwara State , International food policy research institute, Nigeria strategic support programme. Available at www.ifpri.org/publication/**child-malnutrition-nigeria**. Accessed on the 15th May 2018

Nigeria Demographic Health Survey (2008). Nigeria national population commission and ICF international, *Nigeria Demographic and Health Survey 2008*.

Nigeria Demographic Health Survey (2013). Population reference bureau calculation based on birth data from the United Nations, *World Population Prospects: The 2012 Revision* (New York: UN, 2013); and on the under-5 mortality rate from the Nigeria National Population Commission and ICF International, *Nigeria Demographic and Health Survey 2013: Preliminary Report, 2013* (Calverton, MD: ICF International, 2013).

Nordqvist, J. (2013). Malnutrition kills over 3 million children annually worldwide Available at: https://www.medicalnewstoday.com/articles/261533.php accessed on the 10th of May 2018

Save the Children (2015). Child malnutrition in northern Nigeria: An illustrative case study, available at: http://www.savethechildren.org.uk/child malnutrition in Northern Nigeria, accessed on the 10th May, 2018

Save the Children UK (2009). *Lasting benefits: The role of cash transfers in tackling child mortality*,

United Nations Children Fund (2013). *Improving child nutrition: The achievable imperative for global progress,* New York: UNICEF

UNICEF (2017) Maternal, child and infant mortality rate in Nigeria available at: https://www.unicef.org/nigeria/overview.html accessed 20th May, 2018

UNICEF Unite for Children (2016). Malnutrition rate of children under five years in Nigeria, available at: http://www.unicef.org/factsheets_NUTRITION_low accessed on the 10th of May, 2018

UNICEF (2011). Overview of nutritional status of Nigerians, A presentation at a seminar "High quality proteins: The missing link in development" at PROTEA hotels, Ikeja: on Tuesday, 8th March 2011, available at http://www.unicef.org.ng/an overview of nutritional status of Nigerians, accessed 10th May, 2018

Yunusa, I., Gumel, A. M., Adegbusi, K., & Adegbusi, S. (2012). School feeding programme in Nigeria: A vehicle for nourishment of pupils. In *The African Symposium: An Online Journal of African Educational Research Network* 12 (2): 104–110.