Nutrition and Child Health: Challenges and Implications for the Survival of the Nigerian Child under Climate Change

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ABSTRACT: Most nations place much value on children and wish to see them grow to be healthy adults, mentally sound and productive. Children are assets to any nation, so the society cannot afford to ignore them. Despite the fact that many Nigerian families spend almost 75% of their income on food, the rate of malnutrition among children remains a serious source of concern. Recent studies have shown that 46% of Nigerian children of age five years and below are stunted, while another 46% suffer from wasting. This paper reviews the status of nutrition and health of the Nigerian child and the challenges these pose to his survival in the current economic dispensation.

Keywords: Nutrition, child health, challenges, implication, climate

INTRODUCTION: Adequate nutrition is useful not only for the survival of the child, but also for maximum physical, mental and social development and for good health. Nutrition contributes a lot to the foundation of a child’s growth and development, especially in its infancy. Good nutrition for a child implies good immune system, less illness and better health, which enable the child to make useful contributions to society in later life.

The relationship between nutrition, health and climate change has been emphasised in literature, as good nutrition is said to be fundamental to child survival and prevention of malnutrition (Ajala, 2006 and Ihensekhien et al., 2009). According to ACC/SCN (2002), during infancy and early childhood, there is usually an irreversible faltering in linear growth and cognitive deficiency associated with anaemia. Adequate nutrition for children is thus paramount to reducing the challenges posed by climate change on the health of the society. In recognition of this fact, the World Bank (2001) identified certain factors undermining food security for the child. These are food availability, accessibility and utilization. This means that the family must always have unimpeded access to food, make it available and utilize it correctly for their nutrition status to be considered ‘secure’. It becomes pertinent to know exactly how many Nigerian families can boast of adequate access to and utilization of food.

Furthermore, climate variability has attracted much attention in recent times, not only because of the globally unparalleled persistence in anomalously low rain or high rainfall, but also because of the low capacity of the society and economic systems to cope with its related hazards, especially in sub-Saharan African. As a result of low capacity, extreme climate variability is often accompanied by drought, ecological decline, widespread food scarcity and general poverty (Tarhule and Lamb, 2003). Climate change, with its long-term changes in rainfall pattern and shifting temperature...
zones, is expected to have negative effects on food production and, therefore, nutrition and health, especially of the child (cf. Imonike, 2009). Thus, this review is aimed at examining the challenges posed by climate change and the implication to the nutrition and health status of the Nigerian child.

**Status of Child Nutrition and Health in Nigeria**

Generally, food is any edible complex biological substance, which possesses both aesthetic appeal and economically producing metabolisable energy (Imonike, 2009). It is thus suitable for maintaining the entire body system. Food security and good health are fundamental to good nutrition. According to Oganah (2005), people who are food-secure will naturally enjoy good health, as good nutrition promotes healthy living and prevents diseases. It also enhances general body functions; immunises against diseases and common infections, such as diarrhoea and measles in children. The child with inadequate diet, therefore, will not only fail to grow properly but may also develop anaemia and other signs of malnutrition.

Malnutrition is a major public health challenge in Nigeria especially as it affects the health of children under- 5. Nigeria ranked second among six developing countries noted for high mortality rate (Imonike, 2009). Although Nigeria recorded a decline in under-5 stunting from 41% in 2008 to 37% in 2013, it still accounted for 11 million of the World’s 60 million stunted children in 2012 (Ehikioya, 2012). The Nigerian Demographic and Health Survey (2013) showed that the trend in nutritional status worsened from 24% in 2003 to 23% in 2008 and 29% in 2013 for underweight and 11% in 2003 to 14% in 2008 and 18% in 2013 for wasting. Malnutrition refers to disorders resulting from inadequate diets or from failure to absorb or assimilate dietary elements. Olurankinse (2009) has found that inadequate diet, poverty and diseases are the major causes of malnutrition in Nigeria; and that hunger and malnutrition recently assumed a severe status in Nigeria (NPC, 2001). Besides, household food insecurity is high, as many Nigerians earn less than one dollar (N498) a day. The 2009 data on ‘food share’ analysis suggested that most Nigerian households spend 75% of their income on food alone, a clear indication of high of food. The data also showed that many Nigerian children suffer from anaemia, which is a deficiency disorder associated with insufficient dietary iron (Ihensekhien et al., 2009).

Anthropometric data from nutrition surveys on children in various parts of the country have shown a high prevalence of under-nutrition. Data from the Nigerian Demographic and Health Survey (NDHS, 2001, as cited in Ihensekhien et al., 2009) reported that 43% of children under the age of five years are stunted, 35.7% are underweight and 9.1% are suffering from muscle wasting. UNICEF (1993) has also showed that 57.6% of Nigerian children are stunted, while 10.9% suffer from wasting. Comparing the reports of NDHS (2001) and UNICEF (1993) reveals an increase in stunted children, from 43% to 57.66% and 9.1% to 10.9%. Thus, the situation is a cause of concern.

Evidence shows that malnutrition is prevalent in Nigeria in general and North-West Nigeria in particular- where basic essential needs of food, shelter and clothing are often not within the reach of the majority poor (Adeola, 2016). Child morbidity and mortality rates are the most widely used indices on child health. These are also considered as very sensitive indicators of a community’s health status, as they often
reflect the effects of environmental and social conditions (Schellenberg, 2003). At the dawn of the twenty-first century, it was reported that one in seven Nigerian children dies before his fifth birthday (fos/Unicef, 2000), so that a baby born in Nigeria is 30 times more likely to die before age five than one born in an industrialised country. With regard to global infant and child mortality rates in 2001, Nigeria ranked 15th highest (Unicef, 2001). With more than one million children dying annually from preventable diseases, Nigeria is one of the least successful African countries in achieving improved child survival in the past four decades.

The Concept of Climate Change

The variables that are commonly used by meteorologists to measure daily climatic conditions include air, temperature, precipitation (e.g., rain, sleet, snow and hail), atmospheric pressure, humidity, wind, sunshine and cloud cover (IPCC, 2007). Therefore, climate variability refers to the climate changes taking place around the globe, or the year-to-year variations of atmospheric conditions around a mean state or a measure of the frequency distribution of the value of climate variables and their range over a given period (Bartlet, 2008). Changes in climate in, for example, temperature, rain, flood, drought and sunshine can permanently damage nutrients in different food resource bases on which children and adults depend, to the extent of causing ill-health conditions that may result from under-nutrition that may occur.

Climate change is thus a major challenge to issues regarding child nutrition and health especially in Africa, where illiteracy and/or ignorance concerning this global phenomenon persists. It poses a threat to food security and the general conditions of any population (IPCC, 2007). Food, being one of the most weather-dependent of all human factors, is highly vulnerable to climate change. African countries are particularly vulnerable because of their dependence on rain-fed agriculture, high levels of poverty, low levels of human and physical capital, inequitable land distribution and poor infrastructure (Cohen, 2008, in Tologbonse et al., 2010). Nigeria, like all other countries, is experiencing increasing risk from climate change, including rising temperatures and heat waves, shortfalls in water supply, floods arising from excess rainfalls, sea level rise, increase in likelihoods of conflict and induced environmental and vector-borne diseases. These conditions invariably affect the nutrition and health status of its population, especially children, who often have no control over what they are fed with.

Impacts of Climate Change on Child Nutrition and Health

A 2005 evaluation of Nigeria, alongside other 23 countries in sub-Saharan Africa, projected that meeting the Millennium Development Goals (MDGs), particularly with respect to child and maternal health, will elude the country because of climate change and other multiple stresses (IPCC, 2007). The summarised effects of climate change on food security, nutrition and health show that there would be increased deaths, disease and injury due to heat-waves, floods, storms, fires and droughts; increases in malnutrition; increased frequency of cardio-respiratory diseases; altered spatial distribution of some infectious-disease vectors; and increased burden of diarrhoea diseases. These conclusions were based on several indices, some of which are discussed below.

Human settlements will be affected by climate chart. Urban and rural population concentrations will be disrupted, particularly along the coastline, due to sea-level rise and related phenomena. Some settlements are known to have already relocated farther
inland from their original sites in response to sea incursion over some decades (IPCC, 2007). Population displacement and migration from and to various human settlements will arise from either or both of drought incidents in the north and/or accelerated sea level rise in the coastal region. Rises in sea-level will also threaten urban and rural infrastructure facilities in low lying coastal regions. Too frequently adjusted or readjusted weather conditions due to such displacements would definitely impact negatively on the health of the child (UNDP, 2005).

Extreme climate conditions such as high wind, heavy rainfall, heat and cold can result in wide-ranging scenarios such as tropical storms, floods, landslides, droughts and sea-level rise. Climate catastrophes induce populations to be displaced (or decimated by death), which in turn can lead to conflict and civil unrest, conditions that are not good for the health of children, especially. Public health infrastructure, such as community health centres and laboratories, would be eroded when resources are diverted from their maintenance to disaster recovery. Communities and governments would be burdened with having to make reparations to individuals for property damage and loss, unemployment, clean-up, and reduced socioeconomic viability of the communities affected. At such instances, the health of the general population, including that of the child, would be adversely affected.

Climatic conditions such as temperature, precipitation, sunshine and wind can affect and accelerate the dispersion and increase of pest and diseases affecting food production. This would thus create economic problems because of low agricultural yields and food shortages, as well as nutrition and health problems, such as malnutrition. Pests and diseases can also adversely affect animal husbandry; and they cause human suffering—for example, malaria, cholera, and typhoid.

According to IPCC (2000), climate change would cause a shift in the location of some vector-borne diseases, such as malaria (mosquitoes), sleeping sickness (tsetse fly) etc. Malaria is still the foremost killer disease for children, in Nigeria. Nearly a quarter of children aged 0-59 months in Nigeria had fever within two weeks of birth out of these, less than 10% of them had their blood tested. The situation is particularly critical in the North-west, where 22% of children had fever in the two weeks but only 3% were tested (NNHS, 2015). Mosquitoes, for example, currently thrive in locations where water logging and poor drainage typify the landscape. High flood frequency and water-logging due to climate change in eco-zones hitherto unassociated with malaria will enhance the breeding of mosquitoes and thus the spread of malaria. Malaria will also increase due to the preponderance of stagnant pools of water resulting from sea-level rise related flooding. New evidences with respect to micro-climate change due to land-use changes such as swamp reclamation and deforestation suggest an increase spread of malaria to new areas (IPCC 2000).

Other direct impacts on child health include diseases induced by increasing incidences of heat waves. These could lead to more cases of cerebrospinal meningitis (CSM), which today is found to correlate positively with the extremely high temperature in northern Nigeria, and inversely with absolute humidity to a lesser, although still significant, extent. Currently, this health condition is a feature of Nigeria’s dry belt, represented by the Sudan Sahel region of the country, and occurs in the peak of the dry season. Moreover, the occurrence of skin cancer from direct ultra-violet radiation...
could become commonplace, especially among children.

Due to the very large number of people that may be affected, malnutrition, linked to extreme climatic events, may be one of the most important consequences of climate change. Climate change would definitely add to the problem of water and food insecurity. Children in poor rural and urban slum areas would thus be at high risk of poor water and food-associated diseases, such as diarrhoea.

**Implications of Climate Change for the Survival of the Nigerian Child**

According to Bartlet (2000), UNDP (2005) and IPCC (2007), climate change would bring about vulnerability for young children, as they would be highly vulnerable to respiratory and vector-borne diseases, and to malnutrition with long-term implications, to death and frequent injuries, reduced options for play and social interactions, to neglect, abuse and maltreatment (associated with household stress and displacement), long-term risks for development and future prospects. In more precise terms, the implications of climate change for the survival of the Nigerian child are in the following areas:

- **Water sanitation-related illnesses**: Children under five are the main victims of sanitation-related illnesses (diarrhoea disease, primarily) because of their less developed immunity and because their play behaviour can bring them into contact with pathogens. Drought heavy or prolonged rains, flooding and conditions after disaster all intensify the risks, which are already very high in poor urban areas.

- **Malaria and other tropical diseases**: UNDP (2005) and IPCC (2007) have shown that wherever tropical diseases occur, children are often the most at risk. In Africa, 65% of mortality is among children under five years of age. Take, for example, heat stress—it has been found that young children, along with the elderly, are at the highest risk from heat stress; that for every degree increase above 20°C, there is 2-6% risk for young children and a higher rate of death among them (Tologbonse et al., 2009).

- **Malnutrition**: results from food shortages (as a result of reduced rainfall, other changes affecting agriculture, sudden acute events) and also closely tied to unsanitary conditions and to children’s general state of health. Malnutrition increases vulnerability on every front and can result in long-term physical and mental stunting for the child (UNICEF, 2008).

- **Injury**: After extreme climatic events, injury rates go up for children because of their size and development immaturity. Children are particularly susceptible to injury and are more likely to experience serious and long-term effects (from broken bones, head injuries, etc).

- **Disrupted development, protection and participation**: This alone makes a compelling case for bringing children into focus when examining the impacts of climate change. Children are in a rapid stage of growth and formation, with evolving physical and cognitive functions. The environment has long been recognized as crucial to child survival and health, with children...
especially susceptible to air and water quality, temperature, humidity, and vector borne infections due to their less developed physiology and immunity (UNICEF, 2008).

- **Deprivations:** certain deprivations, such as poor nutrition, are irreversible by the age of 24 months and have lifelong cognitive, physical and reproductive repercussions for the child. The United Nations Convention on the Rights of the Child guarantees every child the right to a standard of living adequate for his physical, mental, spiritual, moral and social development, and the right to the highest attainable standard of health. It also prescribes a child’s right to access information and for his views to be heard. In situations of crises brought about by shifts in climatic conditions, such children are deprived of their rights.

**CONCLUSION**

Indeed, the various phenomena associated with climate change have come to stay. Understanding the challenges of climate change for the survival of the child, as well as the efforts at mitigating its various impacts on the nutrition and health of the child are fundamental to overcoming some of the ills of climate change. We must also understand that the political, social, and environmental decisions made today will determine the inheritance that is left for the child tomorrow. There is thus a moral imperative for all to explicitly consider the child and engage him in the design of responses to climate change, so as to widen his or her adaptive capacity to its various threats.

**RECOMMENDATIONS**

Based on the conclusion of this paper, therefore, it is recommended that, in seeking to reduce vulnerability and enhance resilience in the face of any hazard and risk of climate change, community health workers, teachers and agricultural extension agents must adequately excel in the following response designs:

- **Awareness and Sensitization Campaigns:** Community service providers must intensify efforts at creating awareness among rural dwellers, at family and community levels, on all aspects of climate change adaptation – protection, preparation, relief and rebuilding.

- **Advocacy:** Consistent advocacy campaign should be carried out among different response groups (community, local government, NGO, international agencies, etc) on how, at every level of response, some basic concerns of the child need to be taken into account. Such campaigns are based on adequate knowledge of the child’s life experience and the challenges faced by its caregivers. Such advocacy activities would enhance the integration of such concerns into planning, decision making and action, rather than being treated as an afterthought.

- **Production of educational materials on optimal health and nutrition of the child:** Community Health agents, Home Economists, Nutritionist and Teachers should produce education materials on child health through preventive care and environmental health measures as a form of disaster risk reduction. The materials should
also treat food aid and supports as reparation measures after certain health and environmental crises, bearing in mind that when health is compromised by malnutrition or illness, a child is more likely to suffer long-term damage from extreme events and worsening conditions.

- **Strengthening families’ capacity to cope**: Extension agents should promote activities that enhance adaptive measures and enlarge the capacity of households to come through periods of shock with minimal upset. Coping here would take on a broader meaning where the child is concerned, so that it includes the capacity to manage hardship without compromising the well-being of the child.

- **Developing programmes for maintaining child routines, networks and activities**: A child relies on daily routines and activities as a context for stability and optimal development. Other functions, more critical to survival, will inevitably be prioritized (food, health, livelihoods); but in the course of addressing these, it is important not to compromise a child’s space, activities, networks and opportunities for gaining competence.

- **Intervention programmes that respect the child’s capacity and support his active involvement**: In designing intervention programmes, both Federal and State ministries of health must take cognisance of the fact that the chance to solve problems, contribute, take action, is a potent protective force for a child in adversity. The active contribution of children and young people is a potential community asset too seldom tapped into in the process of development and adaptation. There are numerous precedents for effective action in this area, in disaster risk reduction, preparedness and rebuilding.

- **Nutrition education that emphasises the different methods of cooking to conserve nutrients**: For instance, leafy vegetables can be cooked lightly to prevent overcooking in order to conserve the nutrient contents.

Finally, it must be noted that addressing these concerns for the Nigerian child may appear to be an unrealistic burden on the community service provider in the face of so many other compelling priorities for the government, the Nigerian society and the family. Fortunately, there are strong synergies between what the child needs and the adaptations required to reduce or respond to more general climate change risks. For instance, the most useful measures to protect child health are also fundamental in reducing risks from potential disasters – such as awareness campaigns, advocacy, and provision of drainage, waste removal and proper sanitation. The community service provider, Health workers, Home Economists and extension agent can also support adult family members so that they are better able to address their children’s needs, as this leaves them better equipped to work collaboratively on mitigating climate change impact, preparing them for disasters and rebuilding their lives after a crisis.
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