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Editorial

Concerns on Child Malnutrition and Mortality Increases during the Food Crisis in Nigeria Post COVID-19 Pandemic

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ABSTRACT

Measures adopted to decrease spread of COVID-19 have likely included worsening effects on the existing food crisis, especially in low and middle-income countries. This increases concerns on the potential long-term effects on children nutrition and wellbeing. Without appropriate intervention programs, it could result in increases in children malnutrition, hidden hunger and mortality. The aims of this editorial manuscript were to provide available information on this topic and discuss necessities to target early interventions appropriately for better addressing the situation as consequences can be unpredictable if not appropriately addressed.

Keywords: Child nutrition, COVID-19, Food crisis, Malnutrition, Mortality, Nigeria

The unprecedented global economic crisis initiated by the COVID-19 pandemic and measures adopted to control the spread of its causative virus have likely resulted in dramatic effects on global food security, especially in low and middle-income countries (LMICs) (1, 2). Consequently, global food crisis and hunger have increased more than that they have in earlier five years (3) with much of the increase likely linked to COVID-19 pandemic; thereby, creating serious risks to the nutrition status and survival of children. The pandemic emerged in a time period when food security was already under pressure globally with hundreds of millions of people already suffering from hunger and malnutrition (2, 3). The current economic situation increases concerns on the potential long-term effects on children nutrition and wellbeing. Preventing children from malnutrition with its lifelong complications is now an urgent priority. It is currently unknown to what extent the pandemic has affected the nutritional status of children in LMICs (4, 7). However, considering the current economic and food crisis situation, it can further increase risk of various forms of children malnutrition, hidden hunger and mortality without appropriate intervention programs (5, 6). Therefore, the major aims of this editorial manuscript were to provide further information on the predicted long-term effects of COVID-19 induced food crisis and economic hardship on children nutrition and wellbeing and discuss current necessities to target appropriately early interventions for better addressing the situation because the consequences can be worse if not appropriately addressed.

In March 2020, the Nigerian government implemented restrictions to reduce the spread of COVID-19 in the country based on the guidance from the World Health Organization (WHO). Restrictions included social distancing, boarder closure, movement restrictions and closure of non-essential services in the country. These restrictions may eventually have resulted in unintended effects on food access and availability through the disruption of food systems; thereby, worsening the pre-existing food crisis in the country and significantly increasing poverty rates due to the loss of jobs. Prices of basic foods in local markets have increased uncontrollably; at a time, when people had less money to feed their families. The pandemic has shifted dietary and lifestyle habits of many families not only in Nigeria but also in several other LMICs. The high costs of foods and persistently high levels of income inequality and poverty continue to keep healthy foods out of reach of many people worldwide. Although direct effects of COVID-19 on children are clearly limited globally, its indirect effects on household food security and nutritional status of children are still unclear, demanding immediate attentions (5, 7).

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Concerning time before the emergence of COVID-19 in late 2019, more than 820 million people faced severe food insecurity worldwide (1, 8) with significant effects on an estimated 144 million children, threatening lives of an estimated 45 million children under five years of age (9). Based on recent projections by the World Food Program (10), the COVID-19 pandemic causes nearly 265 million people facing acute hunger, representing an increase of 130 million people since the onset of COVID-19 in 2019. This leads to severe hunger, majorly in lower-income families, and consequently leads to children undernutrition and its associated risks of mortality (11). Another recent study by Roberton *et al*., (7) reported an additional 10–45% increase in death of under five-year-old children every month due to significant decreases in household incomes, changes in the availability and affordability of nutritious foods and interruptions to healthcare accessibility, including nutrition services. An international survey in five countries of Italy, Spain, Chile, Colombia and Brazil on young people within COVID-19 reported significant increases in the consumption of junk and unhealthy foods due to COVID-19 (12). In the United States, 93.5% of 1048 households enrolled in school-based nutrition programs reported as food insecure, compared to 71.5% in fall 2019 (13). In that report, 41.4% of the households reported decreases in fruit and vegetable intakes because of COVID-19. One of the largest studies in France surveyed a population of 37,252 French households during the first 12 months of the pandemic and reported unhealthy nutrition and lifestyle behaviors with increased snacking up to 21% and decreased consumption of fresh foods (14). Globally, Asia and Africa include the greatest burden of children malnutrition, accounting for over 80% of the global cases (6, 15). For example, an estimated 10.5 million children in Asia were suffering from malnutrition-wasting while 78 million were stunted at the beginning of the pandemic (16).

The global food crisis caused by the pandemic has exacerbated difficulties in families already having problems to access affordable and healthy foods (11). In Africa, it is estimated that more than one in five children are malnourished (10) and nearly 30% of children under five years old have restricted growth (17) due to chronic undernutrition, greater than the global average of 21.9%. In Nigeria, it is currently unknown to what extent the pandemic has affected the nutritional status of children as there is lack of sufficient information in the literature. However, recent studies by Anyiam *et al.* (18) and Tassy *et al.* (19) have revealed inadequate daily consumption of proteins and micronutrients with high intakes of energy-dense starchy staples in approximately two out of three children (65 and 60%) in South-East and South-West Nigeria, respectively. A similar report has published an associated high prevalence of wasting (14.4%) and overweight (12.36%) in children. These findings are significantly higher than those in previous reports (overweight of 3.9 and 5.8%) by Ejike *et al.* (20), Ibeawuchi *et al.* (21) and Ayogu (22) before the emergence of COVID-19, which could be a true reflection of the worsening effects of the pandemic on children nutrition. These values are expected to double before the end of 2023, showing how much COVID-19 has exacerbated food security in the region.

Although effects of the COVID-19 pandemic on childhood have not been fully assessed (4), available data and current estimates provide clues as how this crisis can affect nutrition and lifestyle of children. Based on the World Bank reports (23), the COVID-19 crisis likely results in an additional 10.9 million Nigerians pushed into extreme poverty and more than 10,000 additional child deaths per month are expected (5, 8) due to the hardships, financial struggles and high costs of healthy diets. With many people falling into poverty, it becomes difficult for many families to afford various healthy and nutritious diets for their children. To cope with this situation, many households are now adjusting to less expensive sources of calories such as starchy staples and decreasing their consumption of nutrient-rich fruits and animal-originated foods such as meat and fish (18, 24) to pay for other needs such as medication, school fees and rentals. Such a poor dietary habit can include devastating effects on growth and development of the children (4, 25). Unless immediate action is taken, emerged malnutrition and nutritional abnormalities (e.g., stunting, wasting, underweight and overweight) can eventually be detected in children. This aspect is especially disturbing because inadequate nutrition at younger ages includes short-term effects on physical and mental health of the children as well as long-term risks of metabolic diseases such as diabetes, hypertension, stroke and cancer later (25, 26). Children who suffer various forms of malnutrition at younger ages are prone to health problems such as fewer neural connections in the brain that lead to poor cognitive development (9). This damage is irreversible and stunted children are likely to perform poorly at school (9, 26), which can negatively decrease the prosperity of future generations.

There are urgent needs of global community to respond in necessary ways to avoid the worst outcomes of children nutrition and wellbeing (11). Such a response must include additional preparation and/or strengthening the existing intervention programs to tackle predicted steady increases in prevalence of malnutrition and mortality during and post COVID-19 eras. This needs programmed efforts across various sectors (government, donors, individuals and development partners) to reshape food systems to align to sustainable development and also support healthy diets for all groups. Immediate actions should jointly be taken to

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provide sufficient emergency food aids, especially to poor families, during time of increased food crisis and economic hardship and design food assistance programs that offer an adequate access to healthy food through community-based programs, public awareness campaigns and nutrition education programs. Generally, there are individual needs to rethink rapidly how people process, market and consume their foods to decrease food wastes. Moreover, food producers, researchers and suppliers have key roles in ensuring that their actions align with children's best interests. This crisis can serve as a turning point to reshape and transform the current food systems, making them further sustainable, environmentally friendly and resilient to future disasters.

In conclusion, it is critical that the global community continues to monitor the present situation closely to avoid the worst outcomes and carefully consider how to build further resilient food systems. Countries already affected by a higher prevalence of undernourished children should address this issue immediately to prevent its long-term negative consequences on human capital development as well as the economy. Scientific studies are necessary to assess the exact effects of the pandemic on nutritional habits and statuses of children at community levels and decisions should be made based on such data-driven studies, ensuring reasonable and applicable solutions.

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