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Child Malnutrition during the Coronavirus Disease 2019 Pandemic

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In the period before the onset of the coronavirus disease 2019 (COVID-19) pandemic, the number of people suffering from malnutrition had escalated worldwide, despite the efforts made by leading international organizations to mitigate this phenomenon.¹ During the pre-pandemic period, the World Health Organization (WHO) and the World Bank reported impressive data from Asia and Africa, where 381 and 250 million people were undernourished in 2019, respectively, followed by Latin America and the Caribbean (48 million).² In some areas of the world, the combined effect of conflict, climate crisis, and socioeconomic fragility threatens to have serious repercussions on the nutritional status of populations, particularly in children. From 2015 to 2019, malnutrition accounted for nearly one-half of the total number of child deaths worldwide (5.2 million in 2019) with significant costs in economic and human capital development terms.^{3,4} This situation was further exacerbated by the onset of the COVID-19 pandemic. According to a European Pediatric Association/Union of National European Pediatric Societies and Association analysis, the COVID-19 pandemic is expected to cause major health and nutrition effects worldwide (**Table**; available at www.jpeds.com).⁴⁻⁷ Before the pandemic, an estimated 144 million children under age 5 (21.3% of the total) had chronic malnutrition (stunting), 47 million (6.9%) had acute malnutrition (wasting), and 38 million (5.6%) were overweight, with the prevalence increasing in this group from 4.9% in 2000. Chronic malnutrition exacerbated by the pandemic threatens to seriously impair the mental, physical, and cognitive development of children, who may experience difficulty learning, entering the workforce, and poor social interaction within their communities.^{8,9}

This commentary, prepared by the European Pediatric Association/Union of National European Pediatric Societies and Associations Social Pediatrics Working Group in collaboration with the International Pediatric Association, is designed to raise awareness among pediatricians, governments, decision-makers, and public health officials of the risks to childhood nutrition during and after the COVID-19 pandemic and to emphasize the importance of developing appropriate nutrition interventions and programs aimed to reduce the burden of COVID-19-related malnutrition in children.¹⁰

COVID-19	Coronavirus disease 2019
WHO	World Health Organization

Child Malnutrition and Its Socioeconomic Implications

The definition of childhood malnutrition has evolved in accordance with the principles, definition, and dimensions of New Nutrition Science and has progressively integrated the concepts of the 1978 Alma Ata Declaration.^{11,12} Therefore, after being considered a biological deficiency of micronutrients and macronutrients, malnutrition is now viewed as a broad condition that includes social, environmental, and economic determinants. A consistent theoretical and research work now links social factors to children's nutritional status.¹¹ These factors include undernutrition-related conditions (protein-energy malnutrition) owing to insufficient intake of energy and other nutrients; deficiency diseases owing to insufficient intake of one or more specific nutrients, including vitamins or minerals; and overnutrition-related conditions (overweight and obesity) owing to excessive consumption of energy and other nutrients.

The burden of malnutrition is unacceptably high. As outlined by the World Bank, the costs of undernutrition must consider several socioeconomic determinants, including the significant impact of lost national productivity and economic growth. The cost to the global economy and society is calculated to be approximately \$3 trillion per year in the form of lost productivity, ranging from 3% to 16% of GDP in low-income environments. The Consortium of Global Experts, estimated an economic productivity loss equivalent to \$29 billion globally by the end of 2022 as a result of additional malnutrition burdens attributable to the COVID-19 pandemic.¹³

Sound programs supported by appropriate investments, however, can mitigate and prevent such losses, if strategic interventions focusing of child health will include malnutrition. For example, ensuring optimal nutrition in the critical

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1000-day window between the start of a woman's pregnancy and her child's second birthday.

Food quality plays an important role, and income is not the only determinant of stunting; food insecurity, poorly diversified diets, high rates of infectious diseases, inadequate child nutrition, and other causal factors, including nursing practices and poor sanitation and hygiene, can also contribute. Poor food quality and financial crises, as well as conflict, natural disasters, and the COVID-19 pandemic, have worsened malnutrition in many regions.^{2,3} Several changes had taken place during the prepandemic years, and significant transitions in global nutrition are now influencing the lifestyles of children and families in diverse social contexts globally. Rapid changes in food production systems and availability, environmental and living conditions are visible in many low- and middle-income countries. Although these changes could be seen as a positive socioeconomic factor, in many cases they have also stimulated a rapid increase in the burden of overweight and obesity, which were previously considered a disorder of wealthy countries.^{5,13} Over the past 30 years, overweight rates have increased faster in low- and middle-income countries than in high-income countries, and many regions of the world have seen some increase in the prevalence of overweight children under age 5. In 2020, 38.9 million children under age 5 were affected by overweight and obesity, which are now insidiously pervasive conditions, even in countries where child undernutrition is endemic.^{2,3,11} Overall, overweight and obesity are currently estimated to cost \$2 trillion in economic and social expenditures globally and in the postpandemic years we may expect the causative conditions and costs to expand further.²

The Impact of the COVID-19 Pandemic on Global Child Nutrition

The COVID-19 pandemic has exacerbated already poor and malnourished situations, creating further impacts in children. The majority of the world's children—some 2.3 billion—live in 1 of the 186 countries that have adopted restrictive measures to contain the infection.¹⁴ However, public and scientific attention has now focused almost exclusively on the health impacts of COVID-19, ignoring the economic and social costs that the restrictive measures imposed have on the most vulnerable population groups, including children. This point is especially true in economically fragile countries, where the mix of conflict, climate change disasters, and dramatic levels of food insecurity can have incalculable consequences. The pandemic threatens to undo decades of fighting extreme poverty, which globally had fallen from about 1.9 billion people in 1990 to 650 million in 2018.¹⁵

Experiences from previous outbreaks suggest that these phenomena have profound humanitarian effects, affecting the most vulnerable groups who are already exposed to various forms of frailty and malnutrition; this includes women, children, migrants, refugees, and people with disabilities. Data analysis from WHO and the World Bank show that globally

by the end of 2022, at least 70 to 140 million people could be hungry owing to increased poverty as a result of the economic downturn triggered by COVID-19.^{2,3,16} Nearly two-thirds of urban households (62%) have difficulty accessing meat, dairy products, fruits, vegetables, and cereals. In most cases (52%), this was linked to unsustainable price increases.¹⁷

In addition to the disruption of basic health services, the main factors through which COVID-19 is driving severe malnutrition for millions of people include loss of income owing to unemployment, wage retrenchment, and rising food prices. These factors are compounded by the growing impact of blockades and restrictions on food production and supply, weakening social safety nets, the suspension of school feeding programs, and the unfortunate general increase in political instability and conflict over the management of natural resources such as water.¹⁷ A report by Save the Children shows that, in a sample of 37 countries, 9 out of 10 households lost more than one-half of their income during the pandemic and will have difficulty accessing health services, and that 8 in 10 households reported difficulty in purchasing food.¹⁸ In addition, the economic impacts of the pandemic on households are expected to cause an increase in negative socioeconomic response mechanisms that will cause a general increase in child labor.

The impact on education during the pandemic period also contributed to a worsening of child feeding conditions.¹⁹ The closure of school refectories puts at risk those children for whom eating at school represents the only opportunity to receive a full meal each day.

Conclusions

Poverty, climate change, and conflict continue to slow the fight against maternal and child malnutrition and the achievement of the WHO 2030 targets.²⁰ This pathway is now further compromised by the COVID-19 pandemic that exposes the most vulnerable sections of the world's population to a range of devastating health and socioeconomic consequences.^{21,22} Although children account for a small proportion of COVID-19 deaths, it is estimated that decreasing levels of essential and routine health services by about one-half could result in 45% increase in child mortality.²³

The choices that governments and all stakeholders are making in response to child malnutrition and to the COVID-19 emergency will have critical consequences for mothers and children.²⁴ Given the projected increase in maternal and child mortality, it is important to develop policies that respond to the immediate needs generated by the pandemic, but also look to future generations, to increase the resilience of communities, and to build better, sustainable, and inclusive societies for all children.²⁵⁻²⁷ ■

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Table. Projected effects of the COVID-19 pandemic emergency on health, social issues and nutrition (2022 European Pediatric Association/Union of National European Pediatric Societies and Associations data analysis)

In 2022, owing to the emergencies caused by the pandemic, more than 130 million more people may suffer food deprivation compared with 2019.

An estimated 6.7 million more children under age 5 could be acutely malnourished by the end of the 2022, with more than one-half of the cases concentrated in Asia (59%) and 1 in 5 children (22%) in sub-Saharan Africa.

The number of children living in poor households could increase by an estimated 120 million by 2022, especially in certain economically and socially disadvantaged areas of the world.

After the onset of the pandemic an estimated 370 million children worldwide have not had access to school meals.

Although children account for a small percentage of deaths from COVID-19, decreases in essential and routine health services may be associated with an approximate 45% increase in infant mortality.

An estimated 80 million children are at risk of being excluded from standard vaccination programs owing to the pandemic.

It is estimated that a 6-month continuation of restrictive measures can result in up to 7 million unintended pregnancies.

Up to 31 million new cases of gender-based violence against women and girls are expected.