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CHILDHOOD MALNUTRITION: GLOBAL AND REGIONAL PERSPECTIVES

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Abstract: Childhood malnutrition remains a critical public health problem worldwide, driving substantial levels of illness, death, impaired neurodevelopment, and reduced economic productivity. Although many countries have made gains in reducing undernutrition, numerous regions now face a dual burden of undernutrition and overweight, particularly in low- and middle-income countries (LMICs). This review outlines the current global and regional distribution of childhood malnutrition, discusses its main determinants, and summarizes key policy and programmatic responses.

Keywords: Childhood, Malnutrition, Global, Regional, Perspectives

Introduction

Childhood malnutrition includes a broad spectrum of conditions such as undernutrition (wasting, stunting, underweight), micronutrient deficiencies, and overweight/obesity. Malnutrition is estimated to contribute to nearly half of all deaths among children under five years of age globally.[1] Its effects extend over the life course, leading to poorer cognitive development, increased vulnerability to infections, poorer school performance, and lower earnings in adulthood.[2] Global frameworks such as the Sustainable Development Goals (SDGs), the Global Nutrition Targets 2025, and the Scaling Up Nutrition (SUN) movement have intensified attention on child nutrition. Despite this, progress is uneven, and many regions continue to grapple with complex and changing patterns of malnutrition.

Definitions and Forms of Childhood Malnutrition

The World Health Organization (WHO) defines childhood malnutrition using anthropometric indicators derived from WHO Child Growth Standards:[3]

• **Stunting**: Height-for-age z-score < −2 SD, reflecting chronic undernutrition.

• **Wasting**: Weight-for-height z-score < −2 SD, indicating acute undernutrition.

• **Underweight**: Weight-for-age z-score < −2 SD, capturing a combination of acute and/or chronic undernutrition.

• **Overweight**: Weight-for-height z-score > +2 SD in children under five, or BMI-for-age > +1 SD depending on the reference.

Micronutrient malnutrition (or hidden hunger) refers to inadequate intake or absorption of essential vitamins and minerals—such as iron, vitamin A, zinc, and iodine—which may occur even in children whose weight and height appear normal.

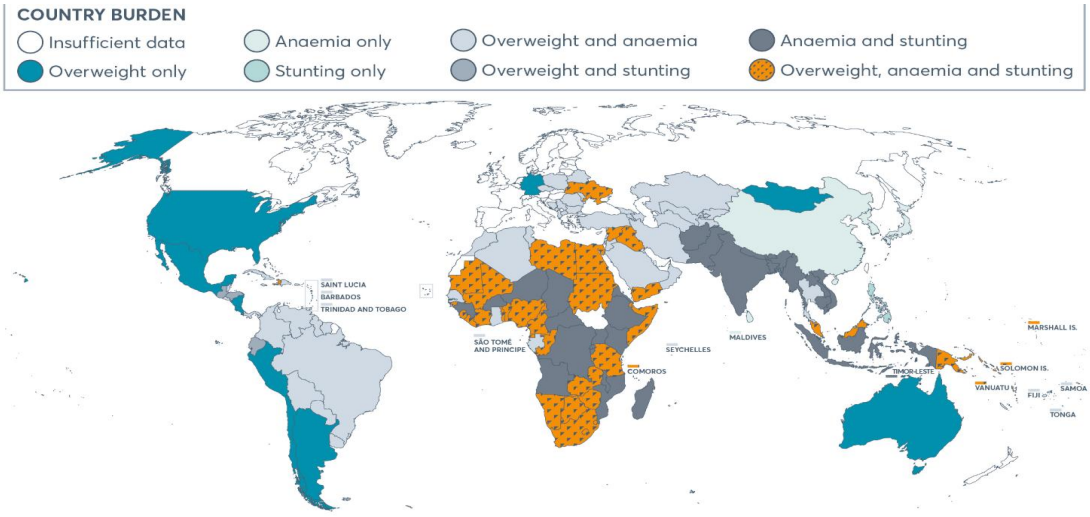
Global Burden of Childhood Malnutrition

Recent joint estimates from UNICEF, WHO and the World Bank indicate that while some forms of undernutrition have declined, the world remains off-track to meet agreed global targets.[6] In 2022, approximately 148 million children under five were stunted, down from about 203 million in 2000 but still far too high.[4] Around 45 million children were wasted, of whom an estimated 13.6 million were severely wasted.[4]Roughly 37 million children under five were overweight, illustrating the growing burden of overnutrition in early childhood.[4]Malnutrition underlies roughly 45% of under-five deaths, particularly in LMICs.[1] Although global stunting prevalence has fallen, the rate of decline is insufficient to achieve the 2025 Global Nutrition Targets and SDG 2.[2],[7]

Regional Perspectives

Sub-Saharan Africa; Sub-Saharan Africa carries a heavy share of the global burden of child undernutrition and is the only region where the absolute number of stunted children has risen, largely because of population growth.[4],[8] Stunting remains above 30% in many countries, reaching over 40% in some settings.[4]Wasting is also common, particularly in the Sahel and Horn of Africa, where conflict, recurrent climate shocks, and food insecurity intersect.[9]Widespread deficiencies of key micronutrients such as iron, vitamin A, and zinc further increase the risk of infections and mortality.[10]

Structural drivers include pervasive poverty, food insecurity, limited dietary diversity, poor water, sanitation and hygiene (WASH), a high infectious disease burden, and entrenched gender inequalities. Climate change and prolonged conflicts compound these vulnerabilities.



South Asia; South Asia remains a major global hotspot for child undernutrition.[4],[11] The region is home to nearly half of the world's stunted children.[4] Countries such as Bangladesh, India, Nepal, and Pakistan have made measurable progress in reducing stunting, yet prevalence in many locations still exceeds 30%.[11],[12]Wasting rates in South Asia rank among the highest globally and often exhibit seasonal peaks linked to infectious disease patterns and food insecurity.[4],[13]. Contributing factors include poor maternal nutrition, early marriage and adolescent pregnancy, intra-household food allocation that disadvantages women and children, low dietary diversity, and high rates of low birth weight.[11]

East Asia and the Pacific; East Asia and the Pacific have recorded substantial declines in stunting and underweight, notably in countries like China and Vietnam, supported by rapid economic growth, improved food security, and investments in health and education.[4],[14]However, the region now faces a rising prevalence of childhood overweight and obesity, especially in urban settings. This trend is driven by shifts toward energy-dense, nutrient-poor diets, lower physical activity levels, and aggressive marketing of ultra-processed foods.[15]

Latin America and the Caribbean; Latin America and the Caribbean exemplify the nutrition transition, where undernutrition has declined while overweight and obesity in children have grown rapidly.[4],[16].In several countries, overweight prevalence among under-five children exceeds 8–10%.[4]Indigenous, rural, and low-income populations continue to experience higher rates of stunting, reflecting enduring social and economic disparities.[16],[17]Regional policy responses include taxes on sugar-sweetened beverages, front-of-pack nutrition labelling, and nutritional standards for school meals, although implementation and enforcement remain uneven.[18]

Middle East and North Africa (MENA); The MENA region faces a pronounced double burden of malnutrition, with undernutrition and micronutrient deficiencies coexisting alongside high levels of childhood overweight.[4],[19]Conflict-affected countries such as Yemen and Syria report high levels of wasting and stunting due to severe food insecurity, population displacement, and disrupted health systems.[20]In wealthier countries, diets high in sugar-sweetened drinks and fast foods contribute to a growing prevalence of childhood overweight and obesity.[19]

High-Income Countries; In high-income countries, severe undernutrition is relatively rare but persists in marginalized groups, including refugees, ethnic minorities, and children living in poverty.[21]Here, childhood overweight and obesity constitute the primary nutritional challenge and are strongly linked to future risk of non-communicable diseases (NCDs) such as type 2 diabetes, cardiovascular disease, and some cancers.[22] Key drivers include pervasive marketing of ultra-processed foods, increasingly sedentary lifestyles, and broader social determinants of health.

Determinants of Childhood Malnutrition

The UNICEF conceptual framework describes childhood malnutrition as the outcome of interacting immediate, underlying, and basic determinants.[2],[23]

Immediate determinants; Inadequate dietary intake (insufficient calories, protein, and micronutrients). Illness and infection (e.g. diarrhoea, respiratory infections, malaria, HIV, and neglected tropical diseases)

Underlying determinants

• **Household food security**: Reliability of access to safe, nutritious, and sufficient food.

• **Care and feeding practices**: Suboptimal breastfeeding, poor timing and quality of complementary feeding, and lack of responsive feeding.

• **Health services and environment**: Limited access to quality maternal and child health services and inadequate WASH conditions, leading to frequent infections and environmental enteric dysfunction.

Basic determinants

• Poverty and socioeconomic inequality

• Low maternal education and limited decision-making power for women

• Harmful gender norms, early marriage, and adolescent pregnancy

• Political instability, conflict, and displacement

• Environmental degradation and climate change

The Double Burden of Malnutrition

A growing number of LMICs now experience the double burden of malnutrition, where undernutrition and micronutrient deficiencies exist alongside overweight and obesity, often within the same communities and even within the same households.[24] Children who are undernourished early in life may be more susceptible to overweight and metabolic diseases in adulthood, particularly when later exposed to energy-dense diets and sedentary lifestyles. This concept, often framed as the 'developmental origins of health and disease', underscores the need for integrated strategies.[25]

Consequences of Childhood Malnutrition

The consequences of childhood malnutrition are wide-ranging and long-lasting:[2,26]

• **Mortality and morbidity**: Higher risk of death from common childhood infections and impaired immune function.

• **Neurodevelopment and education**: Reduced cognitive capacity, delayed motor development, poorer school attendance and performance.

• **Economic impact**: Lower productivity and earnings in adulthood and large aggregate economic losses—estimated at 2–3% of GDP in some LMICs.[27]

• **Intergenerational cycle**: Stunted girls are more likely to become short-statured, undernourished mothers, who in turn are more likely to give birth to low-birth-weight infants, perpetuating malnutrition across generations.

Interventions and Policy Responses

Efforts to combat childhood malnutrition typically combine nutrition-specific and nutrition-sensitive interventions.[2,23]

Nutrition-specific interventions

• Appropriate complementary feeding starting at 6 months, with diverse and nutrient-dense foods.

• Community-based management of severe acute malnutrition (SAM) using ready-to-use therapeutic foods (RUTF) and outpatient care models.[30]

• Micronutrient supplementation (e.g. vitamin A, iron, multiple micronutrient powders) and large-scale food fortification.

• Maternal nutrition interventions, including iron–folate or multiple micronutrient supplementation during pregnancy and, where needed, balanced energy–protein supplements.

Nutrition-sensitive interventions

• Social protection measures (e.g. cash transfers, food assistance) that improve access to nutritious diets.

• Agriculture and food system interventions that promote production, affordability, and consumption of nutrient-rich foods while limiting ultra-processed foods.

• WASH interventions to reduce infection and environmental enteric dysfunction.

• Policies and programmes that support girls' education, women's empowerment, and voluntary family planning.

Policy and systems approaches

• Integrating nutrition actions into health systems through antenatal care, growth monitoring and promotion, immunization services, and community health workers.

• Fiscal and regulatory measures such as taxes on sugar-sweetened beverages, restrictions on marketing unhealthy foods to children, and mandatory, easy-to-understand front-of-pack labelling.[18]

• National, multisectoral nutrition strategies aligned with the Global Nutrition Targets 2025 and the SDGs, backed by adequate financing and accountability mechanisms.

Emerging Issues and Research Priorities

Several emerging trends require sustained attention:

• Climate change and its impact on food production, food prices, diet quality, and child nutritional status.

• Rapid urbanization and changing food environments that favour ultra-processed foods and sedentary lifestyles.

• Humanitarian crises and protracted conflicts, which trigger spikes in wasting and disrupt routine health and nutrition services.

Conclusion

Despite notable progress in some regions, childhood malnutrition in all its forms continues to undermine child survival, development, and human capital formation worldwide. Undernutrition remains highly prevalent in Sub-Saharan Africa and South Asia, while many regions are confronting rapid increases in childhood overweight and obesity. Addressing this complex and evolving challenge requires coordinated, multisectoral action that combines nutrition-specific and nutrition-sensitive measures, tackles the social determinants of health, and responds to rapid transformations in food systems and the environment. Stronger political commitment and sustained investment are essential to achieving global nutrition goals and ensuring that all children can reach their full potential.

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