



A 9 year old girl standing behind a door in front of her home in Buddhi village, Kapilvastu District, Nepal

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Systems approach to prevent all forms of malnutrition among children 5-19 years

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Background

Good nutrition is a prerequisite for children's optimal growth and development for children to achieve their full potential to learn and to ensure their health and wellbeing. Malnutrition in any life stage, especially the early years (up to 5 years of age), middle childhood (5-9 years of age) and adolescence (10-19 years of age), impacts life's trajectory in terms of health, learning, productivity and much more (Wells et al, 2020). The benefits of good diets in the first two years are unequivocal; however, children aged 5-19 years may experience catch-up linear growth if they consume improved diets after previous nutritional deprivation. In most countries, middle childhood is marked as the period of formal schooling and a time when children start to develop new capabilities (Bundy et al, 2018). Similarly, adolescence is identified with the onset of puberty, a time to accumulate human and social capital, a time where identities are consolidated and lifelong values formed

(Geidd, 2018). These years are critical because children in these life stages are the first ones to learn, be influenced and adopt lifelong dietary and related habits (Sawyer et al, 2012). Therefore, it is important to ensure that this unique group is well-nourished.

Drivers and determinants of poor nutrition among children

The growing reality is that malnutrition in all its forms – undernutrition, overweight and micronutrient deficiencies – co-exists in communities, families and sometimes even the same individual (Wells et al, 2020). There is growing evidence that children aged 5-19 years are affected by multiple forms of malnutrition. Global shifts to energy-dense but nutrient-poor diets coupled with decreased physical activity have led to sharp increases in overweight, obesity and diet-related noncommunicable diseases (NCDs) in this age group with increased risks for current and future nutrition, health, education and productivity. Diets with limited animal-source food place children and adolescents at risk of poor growth and micronutrient deficiencies (NCD-RisC, 2017).

The data that we have at our disposal indicates that children in low- and middle-income countries, especially in poorer households and rural areas, have diets comprised mainly of staples such as cereals, roots or tubers with few nutrient-rich animal-source foods (Ochola et al, 2014). Moreover, far too many school-age children around the world are missing breakfast, eating too few fruits and vegetables and consuming too many snacks that are high in sugar, salt and saturated fat such as biscuits, sweets and sweetened beverages that are often marketed to them directly (Keats et al, 2018). Low con-

sumption of fruits and vegetables is particularly concerning given that children who eat these foods in childhood are more likely to continue this habit in adulthood.

Further, the school food environment in many countries promotes the consumption of foods that contribute to overweight and obesity (Welker et al, 2016). Ultra-processed foods and sugar-sweetened beverages are often sold to children in school cafeterias or at convenience stores and street stalls near schools. In addition, advertisements for sugar-sweetened beverages, pastries and sweets are commonplace outside schools and can influence food and drink choices among children.

Consequences of poor nutrition among children

Children need good diets to grow, learn and stay physically active. Poor nutrition can delay children's physical growth and development throughout childhood and adolescence, not just in the first five years of life. Stunted children enrol late in school and because of this may receive fewer years of schooling and earn less as adults (Grantham-McGregor et al, 2007; Brooker et al, 1999). Chronic infectious diseases caused by worms and malaria may affect children's attendance at school or their ability to learn while hunger, the most visceral effect of undernutrition, can impair children's attention and ability to concentrate on their lessons. Similarly, overweight children are at risk of developing NCDs such as diabetes. As adults, they may develop diseases of the heart and circulatory system which can be lethal and have long-term economic costs (Bloom et al, 2011). Overall, malnutrition during middle childhood and adolescence can have long-term physical, social, mental and economic consequences and must be prevented.

Systems approach to prevent all forms of malnutrition

Malnutrition is a multi-dimensional issue. It has a multifarious impact on growth and wellbeing and requires a multi-level, multi-component response embedded across various systems (Sawyer et al, 2017; Scaglioni et al, 2018). No single intervention can prevent all forms of malnutrition. It requires concerted and coordinated efforts at various levels – individual/intrapersonal, interpersonal/community, organisation/environmental/ institutional and macro-level/policy or governance – and across various systems such as food, education, health, water and sanitation and social protection (Box 1). A systems approach helps to broaden thinking and identify how different systems affect the determinants of malnutrition among children in middle childhood and adolescence. It provides the opportunity to establish an integrated response to prevent all forms of malnutrition. However, actions across these systems need to be high quality, accessible, affordable and appropriate. Also, these systems need to ensure that the right groups are being reached with the right services. Strong advocacy is needed to ensure comprehensive efforts are made towards strengthening a systems approach from which children and adolescents' benefit.

Conclusion

As we inch towards the global development agenda, it is important that policymakers and implementers develop a coherent response that includes children in middle childhood and adolescence. Successful programming depends on a country's specific context including institutional capacity, financial resources, legal frameworks and ultimately a commitment to improving the nutritional status of children in middle-childhood and adolescence. Countries need to identify and prioritise actions on the basis of the local context, the commitment of leadership, capacities – both internal and external, the finances available and the vision to go to scale and be sustained over the years to come. The bottom line is that children in school-age years and adolescence should benefit from nutritious and safe diets, essential nutrition services and positive nutrition practices for school-age children.

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Box 1

Food system: Policies, strategies and programmes to ensure nutritious, safe, affordable and sustainable diets and improved food environments/dietary practices. For instance, policies, regulations and restrictions on marketing, front-of-package labelling, taxation, national guidelines and standards on school meals, food-based dietary guidelines for 5-19-year-olds, standards for food safety and labelling and large-scale food fortification are effective actions under food systems.

Education system: Policies, strategies and programmes delivered through schools for improving nutrition, alleviating hunger and promoting physical activity (Sawyer et al, 2012; NCD-RisC, 2017). Schools can help to address micronutrient deficiencies and emerging issues of overweight and obesity. The school food environment affects nutrition-related behavior and practices. School-based interventions that are multi-component and involve whole-school activities, including changes in school policies, curricula and the social and physical environment, along with family and community engagement, are most effective (Ochola & Masibo, 2014).

Health system: Policies, strategies and programmes delivered through primary health care platforms to improve nutrition for in- and out-of-school, married and/or pregnant adolescents (Ochola & Masibo, 2014). Actions through the health system include the prevention of anaemia, deworming, school health and nutrition services, care and counselling through adolescent-friendly health centres, malaria screening and prophylaxis to children 5-19 years of age.

Water and sanitation system: Policies, strategies and programmes to improve access to and use of safe drinking water and safe sanitation. Actions to ensure the availability of potable drinking water in schools, households and community levels are required.

Social protection system: Policies, strategies and programmes to create enabling conditions and actions to strengthen the safety net for vulnerable families, effective school feeding programmes and reduce household-level financial and social barriers that contribute to poor nutrition. The social protection system can contribute by subsidising nutritious school meals and providing nutrition education for out-of-school children using behaviour change approaches. Actions may include nutrition education with the provision of food vouchers and cash transfers to families with school-age children to improve access to nutritious and safe foods.



Students receive training in micro-gardening to improve the diversity of meals provided at school

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References

- Bloom, D, Chisholm, D, Jane-Llopis, E, Pretzner, K, Stein, A and Feigl, A (2011) From burden to "best buys": reducing the economic impact of non-communicable disease in low- and middle-income countries. *Program on the Global Demography of Aging*. <https://core.ac.uk/download/pdf/6413982.pdf>
- Brooker, S et al (1999) Short stature and the age of enrolment in primary school: studies in two African countries. *Social Science & Medicine*. 48(5): 675-682.
- Bundy, D, de Silva, N, Horton, S, Patton, G, Schultz, L and Jamison, D (2018) Investment in child and adolescent health and development: key messages from Disease Control Priorities, 3rd ed, *The Lancet*, vol. 391, no. 10121, 2018, pp. 687-699.
- Giedd, J (2018) A ripe time for adolescent research. *Journal of Research on Adolescence*, 28(1), 157-159.
- Grantham-McGregor, S, Cheung, Y, Cueto, S, Glewwe, P, Richter, L and Strupp, B et al (2007) Developmental potential in the first 5 years for children in developing countries. *The Lancet*. 369(9555): 60-70.
- Keats, E, Rappaport, A, Shah, S, Oh, C, Jain, R and Bhutta, Z (2018) The dietary intake and practices of adolescent girls in low- and middle-income countries: A systematic review. *Nutrients*, 10(12).
- NCD Risk Factor Collaboration (NCD-RisC) (2017) Worldwide trends in body-mass index, overweight, and obesity from 1975 to 2016: a pooled analysis of 2416 population-based measurement studies in 128.9 million children, adolescents, and adults. *The Lancet*. 390(10113): 2627-2642.
- Ochola, S and Masibo, P (2014) Dietary intake of schoolchildren and adolescents in developing countries'. *Annals of Nutrition and Metabolism*. 64(2): 24-40.
- Sawyer, S, Afifi, R, Bearinger, L, Blakemore, S, Dick B and Ezeh, A et al (2012) Adolescence: a foundation for future health. *The Lancet*. 379(9826): 1630-1640.
- Sawyer, S, Reavley, N, Bonell, C and Patton, G (2017) Platforms for delivering adolescent health actions, in *Child and Adolescent Health and Development*. 3rd edition. The International Bank for Reconstruction and Development/The World Bank.
- Scaglioni, S, De Cosmi, V, Ciappolino, V, Parazzini, F, Brambilla, P and Agostoni, C (2018) Factors influencing children's eating behaviours. *Nutrients*. 10(6): 706.
- Welker, E, Lott, M and Story, M (2016) The school food environment and obesity prevention: progress over the last decade. *Current Obesity Reports*. 5(2): 145-155.
- Wells, J, Sawaya A, Wibaek, R, Mwangome, M, Poullas, M, Yajnik, C et al (2020) The double burden of malnutrition: aetiological pathways and consequences for health. *The Lancet*. 395(10217): 75-88.