

The SDGs Will Require Integrated Agriculture, Nutrition, and Health at the Community Level

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Abstract

Child malnutrition is an urgent and complex issue and requires integrated approaches across agriculture, nutrition, and health. This issue has gained prominence at the global level. While national-level efforts are underway in many countries, there is little information on how to integrate at the community level. Here, we offer a community-based approach using cadres of agricultural and community health workers, drawing on qualitative work we have conducted in Tanzania. Agriculture is an important driver of nutritional and health outcomes, and improving child health will require practical solutions for integration that can add to the evidence base.

Keywords

agriculture, malnutrition, nutrition, child nutrition, community health care

Micronutrient supplementation and promotion of breast-feeding and appropriate complementary feeding practices are effective strategies for reducing child malnutrition. But smallholder farmers have an important role to play, too.

Its widely understood among health professionals that what we eat affects our health. But what about what we grow and how we grow it? Too often, there is a disconnect between the production of food, the nutrient richness of our diets, and our health. Yet the potential for improving well-being by linking them together may be substantial. Putting agriculture on the table may be the key to harnessing the greatest possible nutritional and health benefits for children and communities globally.

Nutrition and Agriculture on the Global Stage

The sustainable development goals (SDGs) outwardly acknowledge the importance of nutrition

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and agriculture for development. Expressly stated in goal 2 (end hunger, achieve food security and improved nutrition, and promote sustainable agriculture), the importance of agriculture and nutrition permeates throughout the long list of goals and targets. They are pronounced factors in poverty reduction and health improvement, and they are more subtly intertwined with issues of equity and equality, education, and women's empowerment. They are undeniably linked to water and sanitation; economic growth; energy; and infrastructure, urbanization, and governance. And they will be important determinants of climate change and sustainability.

The prominence of nutrition and agriculture in the SDGs is the result of heightened recognition of the consequences of malnutrition and growing commitment to identify and scaleup evidence-based interventions to tackle this pressing issue. The Scaling Up Nutrition (SUN) movement began in 2009 as a collective effort for governments, civil societies, and others to prioritize nutrition. Fifty-five SUN countries work to achieve the Global Targets 2025, a set of 6 targets for improving maternal and child health through improved nutrition. Endorsed by the World Health Assembly in 2012, the targets call attention to global malnutrition and set a course of action for World Health Organization member states. The UN Zero Hunger Challenge, also launched in 2012, urges people around the world to take action to end hunger, develop sustainable food systems, consume diversified foods, and improve health.

Addressing Nutrition and Health Through an Agricultural Lens

Importantly, all of these global initiatives include targets for child growth. Poor nutrition in the critical first 1000 days of life is responsible for half of all deaths of children younger than 5 years of age worldwide, most of which are in Asia and Africa.¹ The consequences of poor nutrition are severe and often irreversible. Stunted growth affects over 159 million children—1 in 4—younger than 5 years of age, hindering mental and physical development and contributing to poor health outcomes.² And while rates of stunting and underweight are decreasing globally, the number of overweight

children is rising, increasing risk of conditions such as cardiovascular disease and diabetes.

Child nutrition is an urgent and complex issue. Addressing the quantity of food consumed is not enough; nutrient composition and dietary diversity are as critical for adequate nutrition. Micronutrients and essential fatty acids are critical for enhancing growth and immune function and preventing major causes of morbidity and mortality, which is why fruits, vegetables, and animal foods are so important. Yet many diets rely on just 1 or 2 staple foods, such as maize and rice. Cultural, political, technological, infrastructural, and knowledge barriers, all play a role in hindering access, consumption, and utilization of healthy, diversified foods. To overcome these challenges, we need to look beyond the food on the table and consider how, why, and where it is produced.

Given the importance of agriculture in defining nutritional and health outcomes, countries such as Ethiopia and Tanzania, together with SUN, are working to foster collaboration between sectors that have traditionally been handled independent of one another. At national levels, agricultural policy often focuses on production of staple crops and food production for economic gain, while nutrition is embedded within research and education agendas, and public health programs grapple with treating disease and poor health. This isn't surprising: For many years, malnutrition and its consequences have been associated with the health sector alone. Malnutrition manifests in a range of health problems resulting from deficiency or excess nutrients in the body, from diarrhea to cardiovascular disease. Consequently, patients are treated for episodes of disease, and nutrition is rarely considered. A holistic approach to malnutrition can improve health and well-being and remove some of the burden on health systems. There is a clear and compelling reason to integrate across agriculture, nutrition, and health. What's less clear is how to tackle this challenge in practical terms.

Integrating at the Community Level

A good starting place is at the smallholder and community level. Smallholder farmers, working

on less than 10 hectares each (the majority are actually on less than two), are responsible for 80% of food production in sub-Saharan Africa and Asia.^{3,4} In these regions, women represent half of the agricultural workforce.⁵ Understanding the factors that drive nutrition and health-related decisions in these communities can help inform ways to effectively link agriculture, nutrition, and health.

The potential impacts of improved agricultural practices on nutrition at the smallholder level are 3-fold: greater access to diversified nutrients, increased income, and a host of benefits resulting from women's empowerment and improved social dynamics.⁶ The need for integration seems obvious, yet robust evidence is lacking.^{7,8} Research in this area is plagued with issues related to study design, evaluation, and inadequate metrics as well as limited understanding of the dynamics involved, resulting in a lack of clarity over how best to harness the power of agriculture for improving nutrition and health.

But that shouldn't prevent promising approaches from being tried and tested. In Tanzania and Ethiopia, for example, where 40% of children younger than 5 years of age have stunted growth, community health workers (CHWs) have counterparts in agriculture. Agricultural extension workers (AEWs) are trained community educators and advocates who provide information about crop varieties, agricultural technologies, and food storage practices.⁹ Both groups have limited nutritional training, and despite a shared interest in community education and well-being, they rarely interact or collaborate.

The importance of collaborative efforts between cadres of AEWs and CHWs at the community level was highlighted in findings from a qualitative study we conducted in Tanzania in 2014. Overall, knowledge regarding nutrient-rich crops was low among smallholder farmers in Rufiji district. Among those aware of nutrient-rich crops, some cited a lack of access to seeds as the reason for not growing these crops, while others lacked information about cultivation. Farmers expressed a strong interest in learning more about improving the health of their families through what they grow and how they grow it. Both AEWs and CHWs acknowledged

the importance of agriculture for health and felt as though strengthening their ties would reinforce important nutritional messages with information, skills, and resources. These sentiments were also articulated by district-level Agriculture and Health Officers.

Coordinating the efforts of AEWs and CHWs and training them on proper nutrition could have significant implications for health and well-being. Together, AEWs and CHWs could provide comprehensive guidance on best practices for cultivating nutrient-rich crops, such as amaranth, and counseling on basic nutrition and public health practices, such as breast-feeding and safe hygiene and sanitation practices. The CHWs can also be trained to encourage and monitor the consumption of iron and folate supplements during pregnancy and the use of zinc oral rehydration solution in cases of diarrhea. The experience of AEWs and CHWs could also provide useful information for developing training curricula, helping to build stronger cadres of community workers.

Other examples of integration at the community level include community farms for training. Helen Keller International has been successful in implementing Village Model Farms in Tanzania and other countries. Preliminary results suggest substantial increases in food production, food diversity, and female empowerment. Similar programs include Concern's Realigning Agriculture to Improve Nutrition (RAIN) program in Zambia and the PATH-led Mama SASHA project in Kenya. Community farms for training, led by female farmers, can be used to illustrate effective agricultural practices and educate communities about available nutritious crops. Combining this model with AEWs and CHWs, Village Model Farms could reinforce messages delivered during household visits and group meetings and offer a forum for discussion and collaboration between farmers.

In this way, an integrated community approach can improve agricultural, health, and nutrition knowledge while empowering households—especially women—to make informed food choices for improving the health of their families. Building on existing cadres of health and agriculture workers, this approach would benefit from established systems and the use of trusted community members who are conscious of social norms and cultural

practices. By implementing robust evaluation, it could also inform other, similar approaches and add to the evidence base.

Serving up Solutions

Nutrition, agriculture, and health are finally getting some of the attention they deserve. To deliver on the SDGs and reap the greatest nutritional and health benefits for children globally, new strategies are desperately needed. A dearth of evidence should not preclude future research but rather invigorate us to identify and test promising solutions.

Linking AEWs with CHWs and utilizing community farms is one such idea. Huge gains stand to be made by mobilizing communities to improve dietary diversity and micronutrient intake through integrated approaches, complementing national-level efforts to address malnutrition and working to ensure agriculture delivers for nutrition and health.

Authors' Note

All authors contributed to the concept and development of ideas and reviewed manuscript drafts; Graybill conducted qualitative research; Canavan wrote the first draft.

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