

Q&A: How can we improve the nutrition of children born in low-income countries?

March 13 2024, by Aaron Wagner



Providing adequate nutrition to infants and young children is complicated. A range of factors—including how close someone lives to a food market, such as this one in Forecariah, Guinea—can affect the health of children growing up in low-income countries around the world. Credit: Teresa Schwendler/Pennsylvania State University

The first 1,000 days of a person's existence—from conception until their second birthday—are a critical period for growth and development which can set people on a path for a healthy life, according to Stephen Kodish, assistant professor of biobehavioral health and nutritional sciences at Penn State.

Researchers in Kodish's lab work to improve health and nutrition around the world by conducting research to inform both programs and policies in collaboration with United Nations partners, non-government organizations and national ministries of health.

Teresa Schwendler was the first graduate student Kodish accepted after he joined the faculty at Penn State. Now in the final year of her doctoral studies, Schwendler received a Fulbright Research Award to study drivers of suboptimal maternal and [child nutrition](#) in Guinea, West Africa, and won the Patrice L. Engle Dissertation Grant from the Society for Research in Child Development. She also co-authored a [recent paper](#) with Kodish published in *Nutrients* on the research practices in early childhood nutrition.

Kodish and Schwendler shared insights about why the first 1,000 days of life are so important, especially in low-income country settings.

Q: Why are the first 1,000 days so important to a child's development?

Schwendler: The time from conception until a child's second birthday is a critical developmental period that can set people on the path to a lifetime of good—or poor—nutrition and health. If children do not have adequate nutrition during that 1,000-day window, they may experience suboptimal growth, impaired neurological development and poorer health outcomes later in life. A mother's nutritional status during

pregnancy also directly affects birth outcomes and infant nutritional status. So, providing optimal nutrition during pregnancy can help to break this intergenerational cycle of poor health and nutrition for generations to come.

Kodish: The first 1,000 days actually spans four distinct periods of life for the mother and child: pregnancy, lactation, infancy and young childhood. As Teresa said, ensuring that infants and young children have optimal health and nutrition during these periods is critical to short-term survival and long-term well-being. When a child's health and nutritional needs are not met during the first 1,000 days, many of the problems that arise are irreversible.

We are focusing on infants and children here, but optimal health and nutrition are also critically important for women who are pregnant or lactating.

Q: What factors are the most important for getting people proper nutrition in lower income countries?

Kodish: There are many barriers to accessing nutritious food. Nutritious foods—including [leafy green vegetables](#) and animal sources—are often unavailable and usually unaffordable for typical households in low-income settings. In fact, socioeconomic status is also important at a national level; there is a direct relationship between a nation's gross domestic product and population-level life expectancy.

But money is not the only factor that matters, which is why we consider social and [cultural factors](#) that can affect food access, including the distance someone lives from a food market. Gender norms—specifically the autonomy of women to make their own nutrition-related decisions in a particular cultural context—can differentially affect which household

members may have better access to nutritious foods than others. Even refrigeration is an important factor in many settings.

There are few ways to safely store animal sources or leafy greens without refrigeration, for example, and these types of perishable foods typically provide those critical nutrients during pregnancy and early life.

Schwendler: To understand what factors shape infant and young child diets, our research integrates approaches from multiple academic fields. On the one hand, we must consider how the foods that people consume influence people biologically. However, it's equally important to understand how the economic, cultural, social, and environmental drivers shape dietary behaviors. In many contexts, factors that shape why we eat what we eat go beyond the individual level.

As an example, one of our studies at Penn State was a collaboration with the Sri Lankan Ministry of Health, The University of Colombo Faculty of Medicine and UNICEF to understand the drivers of poor diets among women and infants and young children throughout the country. This work led to research that compared actual feeding practices of children in Sri Lanka to government feeding guidelines. Understanding why people are unable to consistently adhere to such guidelines is an important first step to designing tailored and culturally appropriate solutions.

Q: Where have you been working to address malnutrition?

Schwendler: Before coming to Penn State, I spent two years in The Gambia as a Peace Corps Volunteer working closely with the Ministry of Health to improve the detection of child acute malnutrition cases by training and mobilizing community members. I came to understand that

programming informed by the community can have a great impact. This experience helped me understand that I wanted to dedicate my career to improving maternal and child nutrition specific programming and policy. I was drawn to Stephen's mixed methods and community-led approach to addressing diverse public health research questions.

Since coming to Penn State, I have worked on the ground in three different low-income nations and helped coordinate research in four more. Most recently, I conducted my dissertation in Guinea, which was funded through a Fulbright Research Award and conducted in support of the Guinean Ministry of Health. This work explored what infants were fed, how they were fed, and what programs and policies across food, health, [social protection](#), water, hygiene and sanitation were present to improve maternal and child nutrition in Guinea.

Kodish: We take a very applied approach to research. One of the purposes of a land-grant university like Penn State is to offer extension services, which is when a university offers resources to address public need. Our work is motivated by the desire to share academic expertise and resources with international collaborators, both among local community members, university partners and government stakeholders, to address the health and human rights of vulnerable populations.

We partner with national ministries of health and organizations like UNICEF and the Gates Foundation to improve nutrition in areas of real need. In doing so, our research aims to have positive impacts beyond publication in scholarly journals, with the goal of sharing research findings back with local stakeholders as well as among nutrition practitioners and policy makers. Overall, our team has been fortunate to lead collaborative studies in more than 20 or so countries just in the past six years.

Q: What can people do to help address malnutrition

and food shortages around the world?

Schwendler: Before I was in the Peace Corps, I worked in inner city Baltimore, and even though suboptimal nutrition looks different in the United States, it still exists. Women and children in this nation face a lot of health and nutrition challenges as well, and people can always work to address the drivers of poor health and nutrition in their own communities.

Kodish: I am not sure people always consider that helping to ensure global food and nutrition security is also important for U.S. national security. Doing so not only helps maintain strategic alliances between the U.S. and other nation states, but also helps create living conditions with that meet basic human needs. We have seen time and time again national governments and even regions become destabilized when food insecurity threatens most of a population. A lot of the food and nutrition programs abroad are funded, to some extent, by the U.S. government and partners. Supporting these programs is an important part of addressing health and human rights abroad while looking out for our own national interests.

If someone wants to contribute individually to addressing an issue such as malnutrition, there are plenty of nonprofit organizations and nongovernmental organizations like Doctors Without Borders—to name one of many—that do impactful, apolitical work to promote health in areas of tremendous need throughout the world.

Watching the news these days can take a toll on one's positive outlook. After all, many global health problems may seem intractable given their complexities. However, we have seen major reductions in mortality rates for children under five years old and other important health gains in recent decades thanks in part to both global economic growth and ongoing international health efforts. If ample time, money and energy are spent on public health issues like malnutrition, then it is not an

exaggeration to say that life may be improved for millions of people. Where there's a will, there's a way.

More information: Teresa R. Schwendler et al, Observational Methods in Studies of Infant and Young Child Feeding Practices in Low- and Middle-Income Countries: A Twenty-Year Retrospective Review, *Nutrients* (2024). [DOI: 10.3390/nu16020288](https://doi.org/10.3390/nu16020288)

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