

Summary



Early is best but it's not always too late: Young Lives evidence on nutrition and growth in Ethiopia, India, Peru and Vietnam

Between 2002 and 2016, Young Lives followed the growth and development of 12,000 children in poor communities in four developing countries. This longitudinal research offers crucial insights on children's growth trajectories, identifying which children are at risk and why. One significant finding is that, contrary to previous understandings, children can recover from early growth deficits, even into adolescence. Other children falter in their growth after infancy. This highlights the importance of sustained investment in children's development through the first two decades of life.

Over the past 25 years, low- and middle-income countries have seen unprecedented progress in child well-being. Nevertheless, many children and young people continue to have serious deficiencies in health and nutrition that not only endanger their lives, but can also impair their future health, cognitive ability, and productivity as adults. Recognition of this global problem is increasing, which has been given new impetus within goal 2 of the Sustainable Development Goals which includes commitments to achieve food security and improved nutrition.

Optimal growth and development depends on the body's tissues getting enough of the right nutrients to satisfy both energy needs and growth. Compared with adults, children and adolescents have higher nutrient requirements and are more prone to infectious disease, which in turn impairs growth. Child growth and nutrition are, however, influenced by other multiple, overlapping factors – including inherited genetic characteristics, children's past experiences and the household and community environments to which they are exposed.

This summary is based on the Young Lives *Early is best but it's not always too late: Young Lives evidence on nutrition and growth in Ethiopia, India, Peru and Vietnam* report, highlighting the context in which this research was conducted, cross-country findings, and key implications for policy and practice. The full report is available on the Young Lives website, detailing acknowledgements, photo credits and references.

Young Lives

Young Lives has followed the progress of 12,000 children in 80 poor communities across Ethiopia, India (in the states of Andhra Pradesh and Telangana), Peru and Vietnam. Young Lives monitored children from two age groups: 4,000 born in 1994 (the Older Cohort); and 8,000 born in 2001 (the Younger Cohort). The study contacted these children at about three-year intervals, collecting a wealth of data on the children, including measuring their heights and weights, while also interviewing children and their caregivers in order to build up a detailed profile of their households and communities.

The Older Cohort were around age eight when first surveyed, and age 22 at the final round. The Younger Cohort were aged approximately one year when first surveyed, and roughly 15 years at the final round. By interviewing the younger children at the same ages as the older ones, but seven years later, it is possible to compare the development and well-being of the two groups at the same points in their lives.

The extent of malnutrition

At the start of the study, the incidence of stunted growth among children in the Young Lives sample was at levels between medium and very high (as classified by the World Health Organization). In 2002, across the four countries, between 21 per cent and 41 per cent of children were stunted. By 2016, however, comparison between the two cohorts showed that the situation had improved: rising wealth and better services had contributed to healthier child growth, and the proportion of 15-year-olds who were stunted had fallen, sometimes markedly – in Peru, for example, from 31 per cent to 17 per cent.

Child malnutrition can also take the form of 'wasting' (low weight-for-height). Compared with stunting, however, wasting tends to be more sporadic, reflecting short-term, often seasonal, food shortages. The prevalence of wasting for one-year-old children was relatively low in Peru and Vietnam, but much higher in Ethiopia and India where it affected around 20 per cent of children.

The children most likely to be under-nourished were those in the poorest families and in rural areas – often in minority ethnic groups. Boys were more likely than girls to be stunted or wasted in early or middle childhood, although by adolescence the gender difference had mostly disappeared (with the exception of Ethiopia, where boys were much more likely to be stunted, but which could relate to delayed pubertal growth spurts for boys in that country).

Many developing countries not only have significant prevalence of child stunting and wasting but are also seeing rising levels of child overweight and obesity. Young Lives found the greatest problems in Peru where around one-quarter of children were overweight or obese, although the levels were also rising in India and Vietnam. Overweight and obesity were more common in urban areas, and among children from wealthier households, with early age of menarche a predictor in girls, and prevalence of overweight rising during adolescence for both boys and girls.

Consequences of malnutrition

Child malnutrition can have severe consequences – affecting not only children's physical growth but also their neurological development, cognitive functioning and progression in school. In all four countries, children who were stunted at age one were likely to perform worse at a maths test at age five, and at eight they had lower scores in tests of maths and reading. Stunting that persists can also be associated with psychosocial outcomes. Though the link may not be causal, eight-year-olds who had lower height-for-age also tended to have lower self-efficacy, self-esteem and aspirations at age 12.

There are also developmental consequences of wasting. In India, children of lower than expected weight at age one performed worse on tests of vocabulary, quantitative reasoning and maths at ages five and eight. If children were both stunted and wasted, they were more likely to have lower maths test scores at age eight. The impact can also extend through generations if undernourished adolescent girls and young women give birth to underweight children.

Key determinants of child growth

Why are some children likely to grow less well than others? This is the question posed of Young Lives' nutrition research. Key determinants in answering this include low birthweight, poor nutrition (including quantity and quality of food), infection and diarrhoea – often resulting from deficiencies in water supply and sanitation.

During the early years especially, the most immediate influence on children's nutrition and growth is the household or extended family unit. Evidence from all four countries confirms that the children more likely to be stunted are those from poorer households who, with less leeway for adjustment, are also at greatest risk during times of economic adversity.

Children's growth is affected not just by income and housing conditions, but also by the health and education levels of other family members – particularly their mothers – and their emotional wellbeing, attitudes and behaviour. Even before conception or during pregnancy, the health of the child can be affected by factors including maternal undernutrition, or chronic stress.

In Young Lives households, overall improvements in economic conditions between 2009 and 2016 helped increase food security and dietary diversity and thus improve nutrient intake. Over the same period, households were able to consume a more diverse range of foods. In India, Peru and Vietnam, over this period, the Younger Cohort also consumed more animal-source foods which will have contributed to healthier growth for some children, though for others this increased the risk of overweight and obesity through consumption of sugar and saturated fat, and the risk of exceeding calorie requirements.



The Young Lives sample shows growth disparities between boys and girls – with boys at greater risk. These differences arise from a mix of genetic, biological, economic and sociocultural factors. Boys are biologically weaker and more susceptible to disease and premature death, explaining the growth advantage experienced by girls during early and middle childhood. However, the differences between boys and girls are not entirely explained by biological factors. Gender disparities also vary according to household economic status. In India, Peru and Vietnam the initial pro-female gap in stunting is more evident in poorer households. In India, gender bias may play a part in reduced stunting prevalence among adolescent boys, who enjoy greater dietary diversity than girls at this age.

Urban children generally fare better than rural children. Nevertheless, the urban environment is often of poorer quality in terms of water, air and sanitation. Urban children may therefore face an increased probability of disease and infection associated with high population density and pollution. In India, for example, among children under six, indoor air pollution arising from using solid fuels for cooking is associated with long-term respiratory illnesses. Young Lives data for India indicate that living in an urban slum can lead to poorer average health in children.

Children are also directly affected by environmental hazards such as drought, but they can also be affected if environmental events disrupt livelihoods and food supplies. Young Lives data confirm that children exposed to extreme weather events in early childhood are likely to be shorter than their peers. These effects persist across generations. Children born to mothers exposed to famine in Ethiopia were likely to be shorter, have lower levels of schooling, and lower self-esteem throughout childhood. Children's growth will also be affected by disasters caused by humans, notably violent conflict.

Growth recovery and faltering

It used to be thought that deficits in linear growth during the first 1,000 days of life were irreversible. This is not the case. Young Lives found that even in later years there was still significant 'growth plasticity'. Recovery was not only possible, but for many children quite likely. Between 27 per cent and 40 per cent of the children recovered from initial stunting to become not stunted by age five, the proportion rising further by age 8. Recovery was even evident during adolescence, at age 15. On the other hand, other children, whose initial growth had been normal, later faltered to become stunted. The initial severity of stunting and the genetic potential, as indicated by the mother's height, influenced the likelihood of recovery. While children who were never stunted did best of all, children who were stunted at age one, but recovered, subsequently performed better on cognitive tests and were less likely to be over-age for their school grade than children who remained stunted throughout childhood.

Principles for policy and programming

Young Lives research has built up a detailed picture of the key influences on child nutrition and growth. This suggests six overall priority areas for policy and intervention.

1. Investing throughout childhood

It is well established that healthy child growth in the early years requires investment in health and nutrition, and in clean water, sanitation and hygienic environments, along with support for cognitive development. Young Lives has established that there may be gains from sustaining investment through adolescence. Measures to improve later nutrition not only consolidate early growth and prevent faltering, but also help those children who were initially stunted to recover. The earliest point in life is the most sensitive, and must be the priority. Identifying later opportunities is not about replacing that early effort, but of adding to it.

Interventions to promote growth can be nutrition-specific – directly improving recipients' nutritional status by providing them with regular access to nutritious food. But vulnerable children, households and communities may be affected concurrently by multiple forms of malnutrition, so direct nutritional interventions alone will not suffice, requiring nutrition-sensitive measures.

2. Providing robust social protection

Faced with precarious livelihoods and food insecurity, households and communities have protected children through informal coping strategies and safety-nets. In addition, some households also get support from governments and others through various forms of social protection. Measures include cash transfers, food supplementation (including school feeding), health coverage, and home visits by social workers and medical staff. These mechanisms can help prevent malnutrition, and also compensate, at least partially, for early stunting. Social protection programmes need, however, to be well designed – taking care to offer food that is nutritious, and reaching the most vulnerable people.

continued overleaf



Principles for policy and programming (continued)

3. Improving water, sanitation and hygiene services

Young Lives research confirms that children's healthy growth depends on effective water, sanitation and hygiene services. Longer term, this can best be achieved through piped sewer systems, but households may also use composting toilets, septic tanks or different types of pit latrine which may be cheaper to scale up in the shorter term. All can prevent contact with human waste – curbing exposure to physical, microbiological, biological and chemical agents of disease. However, these systems also need effective installation and maintenance to ensure their use.

4. Supporting girls and mothers

Fulfilling women's rights to education is vital and an end in itself, but Young Lives has confirmed the value of well-educated mothers for child nutrition. But there is a long lag between educating young girls and reaping the benefits for the next generation. It would be useful, therefore, to also achieve similar gains more quickly through other means. Targeting nutritional information and support at mothers, for example, can increase their awareness of nutritional and environmental risks to children's growth, such as poor sanitation, infection, and inadequate diets. Since mothers' health is so important to children's health, any measures which might improve women's nutritional status (such as investments during adolescence) hold the potential for positive benefits for the next generation.

5. Responding to global concerns over a changing climate

Most child malnutrition needs to be addressed through concerted action by households, communities and governments. But some problems, particularly those concerned with the deteriorating quality of the environment, require a global response. One immediate concern is climate change, since children's exposure to extreme weather events, for example, can have lasting, damaging impacts on their growth and development. The global response lies both in measures to reduce the extent of climate change, and in helping countries and communities to adapt to climate change in ways that do not pose a greater risk to children's development.

6. Using research to support evidence based policy

Finally, we recognise ongoing debate between researchers over the potential and timing of growth recovery. The Young Lives study identifies multi-country evidence of children faltering and recovery after infancy, and that these changes are linked to cognitive development. There is a clear case to continue to test and deepen understandings of these dynamics throughout childhood. A particular gap is understanding adolescent growth recovery, what its implications are, and whether and how it can be brought about. There is good reason to see adolescence as a second critical window for investment, but the evidence base on adolescent nutrition remains limited. A new generation of progressive policies, targeting the early adolescence phase have significant potential to contribute to improving nutrition across the life-course.

Supporting materials based on Young Lives research into children's growth and nutrition can be found on Twitter @yloxford with #YLNutrition.

© Young Lives June 2018

Young Lives is core-funded by UK aid from the Department for International Development (DFID). The views expressed are those of the author(s). They are not necessarily those of, or endorsed by, Young Lives, the University of Oxford, DFID or other funders.

Core-funded by

