



# Improving adolescent undernutrition in Ethiopia: A rapid review evidence brief

## THE PROBLEM

The nutritional status of adolescents (aged 10-19 years) can have profound and multiple impacts on their immediate and future health<sup>1</sup>. Adolescence is a critical time because nutrient requirements increase during this period of rapid physical growth<sup>2</sup>. Healthy diet and eating practices during adolescence can rectify nutritional deficits during the first ten years of life and may curb harmful behaviors contributing to the rise of non-communicable diseases (NCDs) in adulthood<sup>3,4</sup>. Because of these unique windows of opportunities in this age group, investing in adolescent health can bring triple returns: better health during adolescence, adult life, and their potential future children<sup>5</sup>.

Adolescent undernutrition manifested as wasting, stunting, thinness or underweight, and deficiencies in vitamins and minerals<sup>6</sup> is a serious public health problem globally<sup>2</sup>. Though the prevalence of overweight and obesity is increasing in most regions of the world, more children and adolescents are moderately or severely underweight than obese, and the burden is increasingly concentrated in South Asia, Central, East, and West Africa. The mean body mass index (BMI) estimates for adolescents in these areas were less than 20 in 2016<sup>7</sup>. The implications of undernutrition are manifold: stunting often results in delayed mental development, poor school performance, and reduced intellectual capacity, affecting future economic productivity. Obstetric complications during childbirth and the risk of delivering an infant with low birth weight contribute to the intergenerational cycle of malnutrition<sup>8</sup>.



Photo credit: UNICEF Ethiopia/2021/Mulugeta Ayene

Wasting impairs the immune system leading to an increased risk of infections and death<sup>6</sup>. As a result, nutrition is considered a leading contributor to major causes of adolescent deaths<sup>2</sup>.

Historically, despite the importance and magnitude of adolescent health, it has received limited attention<sup>9</sup>. Increased attention to every aspect of adolescent health will deliver significant future dividends at both the individual and societal levels<sup>4</sup>. Research is needed to bridge the considerable knowledge gap related to adolescent growth and nutrition and evaluate interventions to help growth and development, thereby ending the intergenerational cycle of growth failure<sup>2</sup>.

The Sustainable Development Goals (SDGs), which aim at achieving global economic, social, and environmentally sustainable development by 2030, will not be realized without investing in adolescent health and wellbeing<sup>9</sup>. During a priority setting exercise on nutrition-related

problems in Ethiopia in 2019, adolescent undernutrition was identified as one of the priority areas which require an immediate response<sup>10</sup>. Therefore, this rapid evidence brief aims to summarize the best available evidence describing the problem of adolescent undernutrition in Ethiopia as well as potential solutions for addressing the problem.

## SIZE OF THE PROBLEM

In 2016, Ethiopian children aged (5-19 years) had one of the lowest mean BMI in the world for both sexes; 16.8kgs/m<sup>2</sup> (95% CI, 15.6-17.9) for girls and 15.5 Kg/m<sup>2</sup> (14.4-16.6) for boys<sup>7</sup>. A systematic review that involved 17,854 participants across 22 studies reported that 20.7% of adolescents are stunted, and 27% are wasted<sup>11</sup>. In 2016, the prevalence of stunting in Ethiopia among adolescents ages 15-19 was 20.7%, more than double the sub-Saharan Africa average (9%)<sup>12</sup>. Ethiopia also has the world's highest prevalence of thinness in boys, at 28%. Additionally, sub-national differences in undernutrition exist. According to Derseh et al. (2021),<sup>13</sup> undernutrition in late adolescent girls was more prevalent in Northern and Eastern Ethiopia, while Berhe et al. (2019)<sup>11</sup> reported that adolescent stunting was high in western Ethiopia and the lower in central Ethiopia. Adolescent undernutrition was high in rural areas compared to urban areas<sup>11,13</sup>.

## CAUSES OF THE PROBLEM

The immediate causes of undernutrition are inadequate dietary intake and diseases<sup>8</sup>. The underlying causes of undernutrition and diseases are food insecurity, inadequate care for women, and children, insufficient health services, and unhygienic environments, which in turn are propelled by more fundamental causes like conflicts, inadequate education, poverty, gender inequality, insufficient infrastructure, and other basic issues<sup>8</sup>.

Various underlying and basic causes of adolescent undernutrition are reported in Ethiopia. A study using data for late adolescent girls (15-19 years) from four demographic and health surveys (2000-2016) reported that girls with higher education were 4.4 times more likely to be undernourished than those without education<sup>13</sup>. The chances of undernutrition in girls living in rural areas were 3 times higher than in those living in urban areas.

Another study also reported a significant association between rural residence and adolescent undernutrition. Family sizes (five or above) and mothers' educational status (no formal education) have been linked to adolescent undernutrition<sup>11</sup>. Additionally, thinness among boys was more prevalent in rural areas than in urban areas<sup>12</sup>. Research also found that working adolescent girls have 40% less chance of being undernourished than those not working<sup>13</sup>. Additionally, the likelihood of undernutrition is higher in girls with unimproved latrines than in those with improved latrines<sup>11,13</sup>. Other factors contributing to adolescent undernutrition include using unprotected drinking water sources, food insecurity, and low dietary diversity (consuming less than four food groups)<sup>11</sup>.

### Box 1: Methodology

This rapid review brings together global research evidence (from systematic reviews) and local evidence to inform deliberations/decision makers about improving adolescent undernutrition in Ethiopia. We searched for relevant evidence describing the problem, and possible options for addressing the problem, from systematic reviews.

## Box 2: Adolescent nutrition interventions in the Food and Nutrition Strategy (FNS)

**The national Food and Nutrition Strategy (FNS):**<sup>14</sup> provides a framework for the implementation of the National Food and Nutrition Policy<sup>15</sup>. Its main goal is to attain optimal nutritional status at all stages of life span and conditions to a level that is consistent with quality of life, productivity and longevity. Strategic objective 4 of the FNS aims to improve nutritional status throughout the life cycle through the provision of nutrition-sensitive and nutrition-specific interventions. Strategic initiatives included in this direction are;

i) Provide nutritional assessment and counselling services for adolescents at all contact points;

- ii) Promote good nutrition behavior and reduce harmful traditions;
- iii) Prevent and mitigate macro and micronutrient deficiencies;
- iv) Ensure access to reproductive health information and services for boys and girls.

These actions provide much needed directions to implement adolescent interventions in Ethiopia. However, adolescent intervention processes indicators are not included in the Health Information Management System (HMIS) making tracking implementation more challenging.

## ACTIONS TO REDUCE THE HIGH BURDEN OF ADOLESCENT UNDERNUTRITION

The current evidence gap in adolescent nutrition hinders evidence-informed policies and programs. Lack of information on micronutrient status, diets and adolescent nutrition interventions require special attention<sup>2,12</sup>. Though strategies and programs to address the health and nutrition of adolescents and the youth are in place<sup>10</sup>, documents addressing specific interventions targeted at adolescent undernutrition are lacking.

The ultimate solution to address adolescent undernutrition lies in addressing the basic causes: such as poverty, gender inequality, and inadequate infrastructure. However, since addressing the basic causes can take decades of economic and social growth, policy options which address the immediate cause, adequate dietary intake, is the only pragmatic approach to addressing adolescent undernutrition in the short run.

### POLICY OPTION 1. MICRONUTRIENT SUPPLEMENTATION

Different systematic reviews have reported the benefits of micronutrient supplementation on adolescent nutrition. A systematic review<sup>16</sup> evaluated the impact of micronutrients (zinc, vitamin A, and multiple micronutrients) and protein supplementation for children aged 2-20 years old found that micronutrients and protein supplementation may have positive effects on growth.

Iron supplementation, on the other hand, may increase haemoglobin levels and reduce the risk of anaemia<sup>17</sup>. Calcium or vitamin D supplementation may improve vitamin D status, while calcium only and calcium and Vitamin D supplementation may marginally improve total body bone mineral density<sup>18</sup>.

Since variations in micronutrient deficiencies, are common, contexts need to be considered to select the best intervention for a particular area. Therefore, research efforts should focus on interventions to increase the variety of foods and dietary quality and consider the specific requirements of different populations<sup>17</sup>.

### POLICY OPTION 2. SCHOOL FEEDING

A systematic review of the impacts of school feeding on educational and health outcomes of school-age children and adolescents in low-and middle-income countries has reported that school feeding significantly increased the height and weight of students over 12 months of age<sup>18</sup>.

School feeding started in Ethiopia in 1994, targeting food insecure areas<sup>19</sup>, and is currently benefiting one million people across the country<sup>20</sup>. The Federal Ministry of Health could scale up the coverage of the school feeding program to address adolescent undernutrition in the country.

## CONCLUSION

Micronutrient supplementation and school feeding are potential solutions to address adolescent undernutrition. However, implementing these solutions should require taking into account local differences as

patterns of adolescent undernutrition varies from area to area<sup>11,13</sup>. In regions with a scarcity of information, data should be generated to facilitate improved potential implementation in these areas.

## AUTHORS

Mamuye Hadis<sup>1</sup>, Meron Girma<sup>2</sup>, Masresha Tessema<sup>2</sup>, Aregash Samuel<sup>2</sup>

**CONTACT:** Please address any queries to NIPN Ethiopia at [ephi.nipn@gmail.com](mailto:ephi.nipn@gmail.com)

1. Ethiopian Public Health Institute (EPHI), Knowledge Translation Directorate
2. Ethiopian Public Health Institute (EPHI), National Information Platforms for Nutrition (NIPN)

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