

NUTRITION-RELATED NON-COMMUNICABLE DISEASE (N-RNCD) COUNTRY PROFILES



ETHIOPIA

Evidence has been mounting to support the hypothesis that maternal undernutrition, as well as in-utero and infant and young child undernutrition, increase the risk of developing N-RNCDs later in life (Barker, 1992 and Gluckman, 2010). Recent empirical studies have demonstrated that many common manifestations of undernutrition, such as intra-uterine growth restriction (IUGR), low birth weight, and stunting are all significantly associated with later development of hypertension, insulin resistance, and obesity. These conditions lead to N-RNCDs such as Type II diabetes mellitus (diabetes) and cardiovascular disease (CVD). Addressing maternal, infant, and young child undernutrition is therefore not only important to preventing the immediate threats of child morbidity and mortality, but also to reducing the risk of N-RNCDs later in life.

In Ethiopia, the burden of N-RNCDs is a moderately important health issue in the adult population (See Table 1). In addition to the data shown in the table, the average body mass index (BMI) among women stayed constant at 22 between 2005 and 2011, but overweight prevalence rose by 50 percent, from 4 to 6 percent (2005 and 2011 DHS). Prevalence of diabetes has stayed essentially the same at around 7 percent between 1998 and 2008 (Danaei et al, 2011).

Table 1: Estimated Age-Standardized Adult N-RNCD Prevalence, Ethiopia 2008

	Pre-NCD conditions (% of Adults)				N-RNCDs	
	Hypertension	Raised Glucose levels	Overweight*	Raised Cholesterol	Diabetes (% of Adults)**	CVD (% of Deaths)
Women	39%	7%	6%	22%	7%	-
Total	41%	7%	-	21%	7%	15%

Source: Alwan, Ala and World Health Organization. (2011). *Global status report on noncommunicable diseases 2010*. Geneva, Switzerland: World Health Organization. *Overweight Data from DHS 2011. **Diabetes Data from Global Burden of Metabolic Risk Factors of Chronic Diseases Database (Danaei et al, 2011).

Table 2 shows percent of infants who were born low birth weight, children who are stunted, overweight, stunted and overweight, or who are stunted with an overweight mother, and overweight women, broken down by socio-economic characteristics. Of those children who were low birth weight, 96 percent were born after 8 month or full-term pregnancies, meaning the reason for their low weight was not due to length of gestation. Regarding overweight nationally, only 2 percent of Ethiopian children fall into this category. For comparison, the percentage of children ages 2 to 5 who are considered overweight in the U.S is 11 percent (CDC, 2012). Taking a look at the current nutritional status of children under 5, there is some evidence that children of highly educated mothers (1.4 percent of mothers) may be at risk of obesity and N-RNCDs, but overall N-RNCD risk is low.

Table 2: National Survey Indicators on Nutritional Status, by Background Characteristics, Ethiopia 2011

		% of Children under 5					% of Women 15-49
		Low birth weight	Stunted	Overweight	Stunted and Overweight (same child)	Stunted child with Overweight Mother	Overweight
Educational attainment of mother	No education	32%	47%	2%	1%	1%	4%
	Primary	25%	42%	2%	1%	1%	5%
	Secondary	27%	20%	4%	2%	2%	13%
	Above secondary	21%	19%	8%	0%	1%	17%
Wealth index of family	Poorest	35%	49%	2%	1%	1%	2%
	Poorer	30%	48%	2%	1%	1%	2%
	Middle	32%	46%	1%	0%	0%	2%
	Richer	26%	45%	2%	1%	0%	3%
	Richest	24%	29%	3%	1%	3%	15%
Location of household	Urban	26%	31%	3%	1%	3%	15%
	Rural	30%	46%	2%	1%	1%	3%
Total		30%	44%	2%	1%	1%	6%

Definitions: Low Birth Weight (<2500g or classified by mother as small or very small at birth); Stunted (HAZ<-2SD); Child Overweight (WHZ>+2SD); Maternal Overweight (BMI≥25)

Source: DHS 2011 data, weighted estimates of percent of all children under 5 or percent of women 15-49.

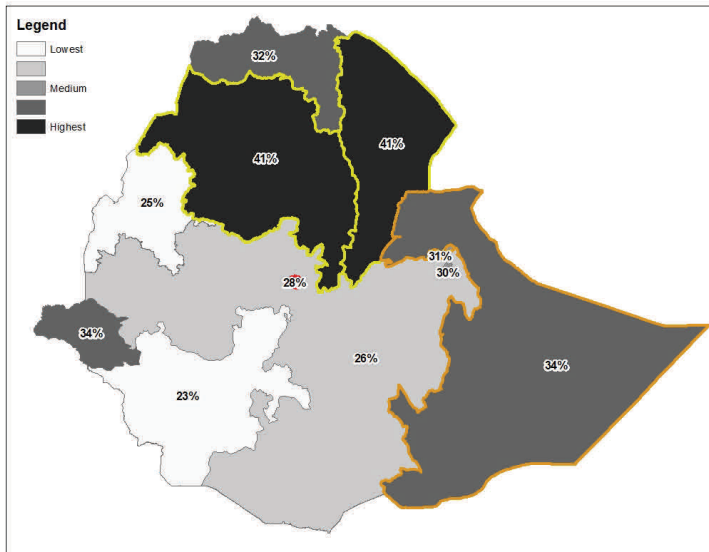


This document is made possible by the generous support of the American people through the U.S. Agency for International Development (USAID) and Feed the Future, the U.S. Government's global hunger and food security initiative, under the terms of the Cooperative Agreement AID-OAA-A-11-00031 (SPRING), managed by the JSI Research & Training Institute, Inc. (JSI). The contents are the responsibility of JSI, and do not necessarily reflect the views of USAID or the U.S. Government.



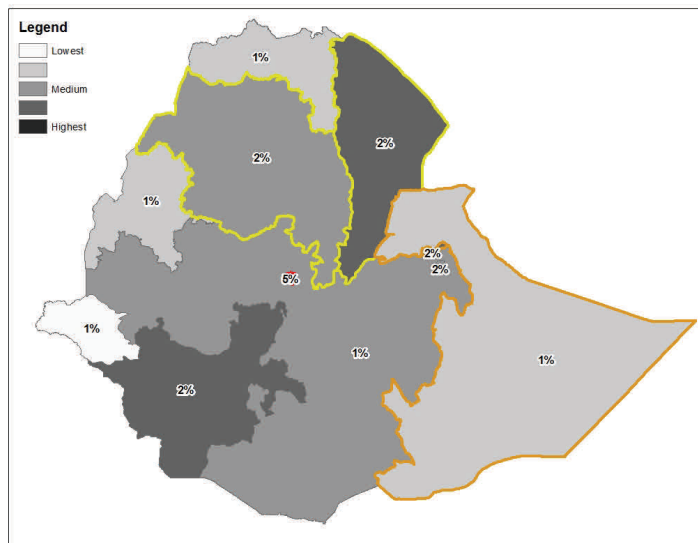
Children from wealthier households, with highly educated mothers, in urban areas appear to be more at risk of being overweight, as do their mothers. For instance, a significant 8 percent of children of highly educated mothers were overweight. However none of these children were also stunted, and the prevalence of low birth weight trended in the opposite direction for all sub-groups. Stunting is still by far the largest nutritional condition in this age group. There appears to be a low risk of crossover of burden from undernutrition to overnutrition in Ethiopia at this time.

Percentage of children who are born low birth weight (<2500g)

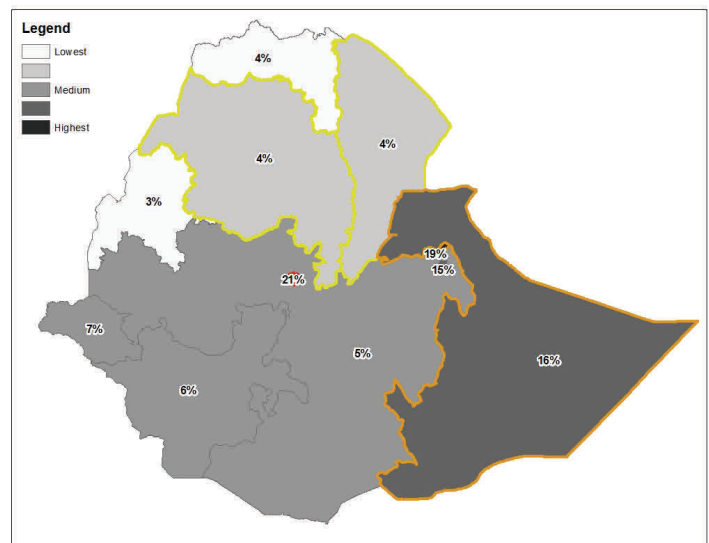


National level estimates do not adequately illustrate the wide sub-population variations that exist. The maps here show these rates at the regional level. Addis Ababa (red border) has the highest overall levels of overweight for both women and children. 2 regions rank in the top 3 highest burden regions for 2 out of the 3 indicators mapped (orange borders): Dire Dawa for maternal and child overweight, and Somali for maternal overweight and low birth weight. Finally, Afar and Amhara (yellow borders) are both among the 3 highest burden regions in terms of low birth weight.

Percentage of children who are overweight (WHZ>+2SD)



Percentage of women who are overweight (BMI≥25)



Source: DHS 2011 data, weighted estimates of percent of all children under 5 or women 15-49.

This descriptive analysis begins to explore where future risks may lie for N-RNCDs in Ethiopia, identifying where undernutrition programs may need to be tailored or targeted to better avoid later life health conditions. It appears stunting is still the largest concern, though there are significant differentials by sub-group. More in-depth analysis is needed to understand the determinants and dynamics influencing these relationships. SPRING is currently working to develop more evidence on why certain sub-populations are more at risk and how this information can be used to adjust nutrition programs.

References:

- Barker DJB, ed. 1992. *Fetal and infant origins of adult disease*. London: BMJ Publishing Group.
- CDC. 2012. CHD Health Data Interactive, for NHANES Data (Round: 2007-2010). Centers for Disease Control and Prevention.
- Danaei, Goodarz, Mariel M Finucane, Yuan Lu, Gitanjali M Singh, Melanie J Cowan, Christopher J Paciorek, John K Lin, et al. 2011. "National, Regional, and Global Trends in Fasting Plasma Glucose and Diabetes Prevalence Since 1980: Systematic Analysis of Health Examination Surveys and Epidemiological Studies with 370 Country-years and 2.7 Million Participants." *The Lancet* 378 (9785) (July): 31-40.
- Demographic and Health Surveys. 2005 and 2011. Ethiopia Demographic and Health Survey. MEASURE DHS.
- Gluckman PD, Hanson MA, Buklijas T. 2010. *A conceptual framework for the developmental origins of health and disease*. *J DOHaD* 1: 6-18.
- WHO. 2004. Appropriate Body-mass Index for Asian Populations and Its Implications for Policy and Intervention Strategies. *Lancet* 363: 9403.