



National and Sub-National Estimates of Child and Adult Nutritional Status Related to Later Life Nutrition-Related Non-Communicable Disease

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Background and Objectives:

Country and regional profiles have been established to provide an overview of the relationship between early life nutrition status and later life nutrition-related non-communicable diseases (N-RNCDs) in two regions (Africa and Asia) and ten countries. This poster focuses on the African region as well as Ethiopia and Zambia. Additional profiles can be found on the SPRING website: www.spring-nutrition.org.

Methods:

The most recent national Demographic and Health Surveys were analyzed for the country results, producing weighted estimates of several variables related to nutrition among children under 5 and women from 15 to 49 years of age. Additional data were pulled from the World Health Organization, the World Bank, the Centers for Disease Control, and the Global Burden of Metabolic Risk Factors of Chronic Diseases Collaborating Group. For aggregated regional data, this poster uses population-weighted averages based on 2012 International Census Database population values.

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)

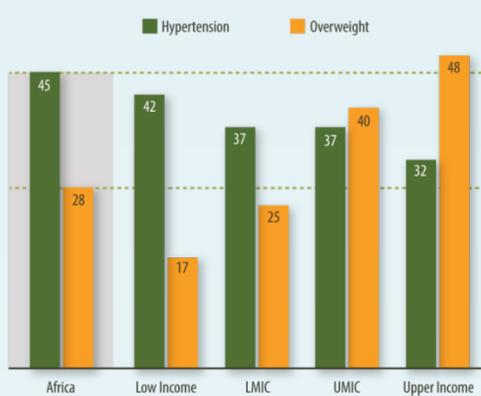
Results:

Evidence has been mounting to support the hypothesis that maternal, in-utero infant, and young child undernutrition are correlated with the risk of developing N-RNCDs later in life. From the data available, the African region currently shows a comparatively low burden of N-RNCDs, but the burden of pre-NCDs, such as hypertension and overweight, is higher than the average in low and lower middle income groups (Figure 1). This could be a precursor of an increasing N-RNCD burden in coming years as calorie availability increases, particularly when compounded by high rates of low birth weight and stunting. As seen in Figure 2, calorie availability has been increasing in the African region, and is expected to continue rising in the future.

The African region is heterogeneous, with some subregions carrying much higher burdens than others. Figure 3 shows national averages for overweight in children, ranging from 1.8 to 10.8 percent. We can contrast Ethiopia and Zambia, two countries on the opposite ends of regional overweight prevalence as seen in Table 1.

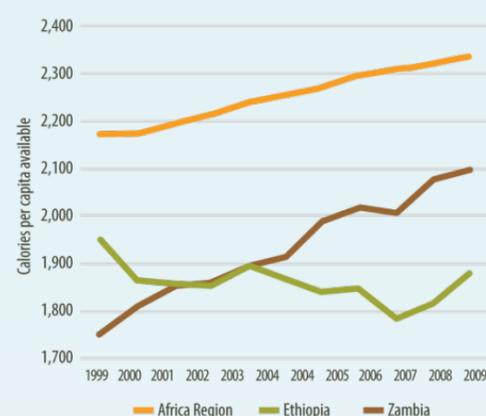
Ethiopia represents the traditional example of a nutrition-poor environment, with little overlap between under- and overnutrition: high rates of stunting and low prevalence of overweight. In Zambia, however, child and maternal overweight overlap with stunting and low birth weight, and prevalence of overnutrition is beginning to overtake undernutrition in some populations.

Figure 1. Mean Pre-NCD Prevalence, Women 25 and Older



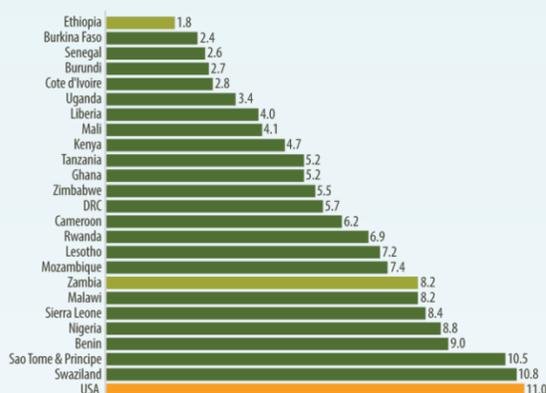
Created using World Bank income and WHO region categorizations. Hypertension data from Alwan and WHO (2011) Global status report on noncommunicable diseases. Overweight data from WHO Global Health Observatory Data Repository (2008). Population-weighted averages used, based on 2012 International Census Database population values.

Figure 2. Trends in Calorie Availability in Africa Region, 1999-2008



FAOSTAT database, accessed September 2012. Uses Crops Primary Equivalent method. No data available for Democratic Republic of Congo.

Figure 3. Percent of Overweight, Children under Five, Latest Year



Countries without a recent DHS (after 2006) use WHO child overweight figures, for children under five. DHS figures are also for children under five. The U.S. figure is from CDC, for children two - five years old.

Table 1. Contrast of Ethiopia and Zambia, Regional Overweight Prevalence

		% of Children under 5					% of Women 15-49 Overweight
		Low birth weight	Stunted	Overweight	Stunted and Overweight (same child)	Stunted child with Overweight Mother	
Ethiopia	Urban	26%	31%	3%	1%	3%	15%
	Rural	30%	46%	2%	1%	1%	3%
	Total	30%	44%	2%	1%	1%	6%
Zambia	Urban	15%	39%	7%	4%	11%	30%
	Rural	13%	48%	9%	6%	4%	11%
	Total	13%	45%	8%	5%	6%	19%

Calculations from Ethiopia DHS (2011) and Zambia DHS (2007)

Conclusions:

Based on current evidence, it appears that N-RNCD risk levels among Africa's subregions vary widely. The prevalence of hypertension and female and child overweight is high and climbing quickly in many countries; this growth, combined with high rates of low birth weight, stunting, and increased calorie availability, may lead to a significant increase in N-RNCDs in this region over the next decade.

Countries should begin to address this growing issue now in their health and nutrition strategic planning and budgeting process. They should also establish standards of care for common N-RNCD conditions, as was recommended by the World Health Organization at the 2008 World Health Assembly.