

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



NEPAL

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 Nepal, 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 rose slightly from 20 to 21 between 2006 and 2011, while overweight prevalence rose from 9 to 14 percent (2006 and 2011 DHS). Using the suggested increased risk BMI cutoff of 23 for Asian populations, those figures rise to 18 and 27 percent, respectively (WHO 2004). Prevalence of diabetes has gone up by 30 percent, from 8 percent in 1998 to 10 percent in 2008.

Table 1: Estimated Adult N-RNCD Prevalence, Nepal 2008

	Pre-NCD conditions (% of Adults)				N-RNCDs	
	Hypertension	Raised Glucose levels	Overweight*	Raised Cholesterol	Diabetes (% of Adults)**	CVD (% of Deaths)
Women	39%	9%	14%	24%	9%	-
Total	39%	10%	-	23%	10%	25%

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 proportions of infants who were born low birth weight, children who are stunted, overweight, or stunted and overweight, children who are stunted with an overweight mother, and overweight women, broken down by socio-economic characteristics. Of those children who were low birth weight, 91 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, only 1 percent of Nepali 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 little evidence of risk of obesity and N-RNCDs in any subgroup. However for women, overweight spikes up for those in the richest (29 percent) and urban (27 percent) households.

Table 2: National Survey Indicators on Nutritional Status, by Background Characteristics, Nepal 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	19%	48%	1%	0%	1%	11%
	Primary	17%	41%	1%	0%	2%	16%
	Secondary	17%	31%	3%	1%	4%	14%
	Above secondary	16%	23%	2%	1%	5%	18%
Wealth index of family	Poorest	22%	56%	2%	1%	1%	3%
	Poorer	17%	45%	0%	0%	1%	6%
	Middle	16%	35%	2%	0%	2%	9%
	Richer	17%	30%	2%	1%	2%	15%
	Richest	16%	25%	2%	1%	8%	29%
Location of household	Urban	19%	27%	2%	1%	6%	27%
	Rural	18%	42%	1%	1%	2%	11%
Total		18%	40%	1%	1%	3%	14%

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)

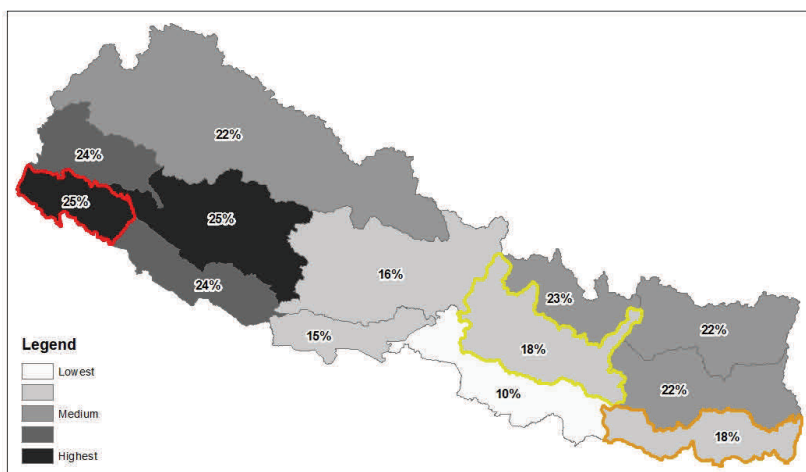
Source: DHS 2011 data, weighted estimates of percent of all children under 5 or percent of women 15-49.



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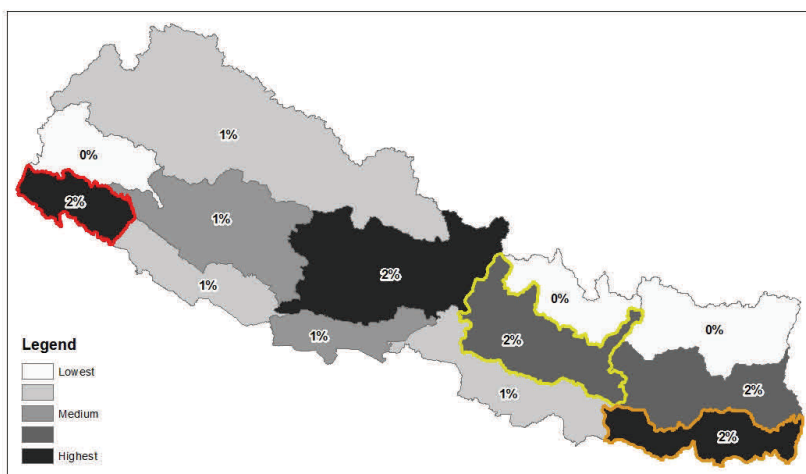


Looking further at Table 2, women with less education and from households with less wealth appear more likely to have a low birth weight baby and/or a stunted child, but conversely look less likely to be overweight. Urban areas had a higher prevalence of overweight women, and stunted child –overweight mother pairs, and slightly higher prevalence of low birth weight. Prevalence of stunting is very high, and highest (42–56 percent) in rural areas, poor households, and when mothers have no education.

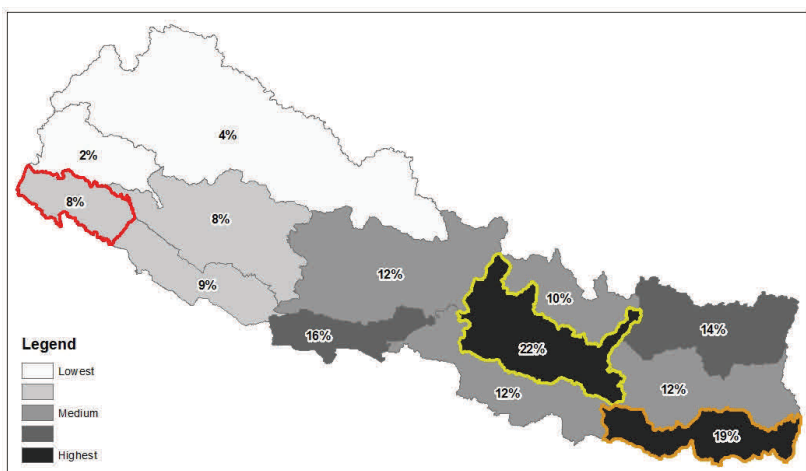


Maps, from top to bottom: Percentage of children who are born low birth weight (<2500g); Percentage of children who are overweight (WHZ>+2SD); Percentage of women who are overweight (BMI≥25).

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



National level estimates do not adequately illustrate the wide sub-population variations that exist. The maps here show these rates at the regional level. The Far West Terai region (red border) ranks among the 3 highest burden regions for both low birth weight and overweight children. The Eastern Terai region (orange border) shows high levels of both child and women overweight. The Central Hills (yellow border) have the highest levels of maternal overweight in the country.



This descriptive analysis begins to explore where future risks may lie for N-RNCDs in Nepal, 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. 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 subpopulations are more at risk and how this information can be used to adjust nutrition programs.

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