Seeing the Whole Picture:
India's Triple Burden of Malnutrition

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Since the mid-1950s, real per capita income in India increased constantly, with the rate of growth accelerating since the early 1980s. Despite this remarkable economic progress, India lags on essential social indicators such as the prevalence of stunting, underweight, poverty, and communicable diseases. According to 2014-16 estimates, 194.6 million Indians are undernourished, which is roughly 15% of the total population. Undernourishment in India has declined by nearly 36% since 1990, but this decrease is negligible in comparison with what has occurred in other highly populated countries such as China, which has reduced undernourishment by 61% over the same period (FAO 2015). The incongruity between India's economic growth and its social indicators indicates that economic expansion does not necessarily translate into social wellbeing.

While stunting and wasting rates are steadily declining at the national level, micronutrient deficiencies remain stagnant, and the percentage of overweight and obese people in India is increasing. The co-existence of these three faces of malnutrition within the same population is called the triple burden of malnutrition.

We have set out to better explain the directionality and consequences of these trends, both at the national level and by state. (We analyzed state-level trends for Bihar, Odisha, and Uttar Pradesh, e.g., at the three TARINA intervention locations.) Multiple datasets were compiled and compared, including the Indian Human Development Survey (IHDS) 2005 and 2011; the National Family Health Survey (NFHS) 1992/3, 1998/9, 2005/6, 2015/16; the Annual Health Survey (AHS) and its component Clinical, Anthropometric and Bio-chemical (CAB) 2014; the Rapid Survey

of Children (RSoC) 2013/14, and the District Level Health Survey (DLHS) 2002. We used the best available statistics on anthropometry, hemoglobin, population characteristics, and geographic

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representativeness. In our analysis we found inconsistencies in some of the nutrition indicators across data sources. Data that are consistent through time and across geographic units would obviously be preferable, but by comparing the

datasets we can confirm whether they are telling the same story.

Multiple datasets confirm downward changes in stunting in children under five years of age and under three years of age (Figure 1). However, the results suggest that improvement was negligible during the 1990s, especially compared with the change observed between the end of the twentieth century and 2006. Unfortunately, lack of improvement in micronutrient malnutrition in women and children, particularly in anemia prevalence, overshadows these positive achievements. Meanwhile, overweight and obesity has increased from single-digit values in the early 1970s to values above 10% since the 2010s. Since the rise in BMI is associated with cardiovascular diseases, diabetes, musculoskeletal disorders, and some cancers, this rise in overweight/obesity is no small public health issue.

It is also worth highlighting that there are persistent gaps between geographic units within India. For example, states with relatively high income, such as Kerala, have experienced a major overweight and obesity burden while states such as Odisha, Uttar Pradesh, and Bihar face a higher burden of stunting and micronutrient deficiencies. In addition to regional differences, there are noticeable discrepancies when comparing rural and urban indicators. This applies not only to malnutrition indicators such as the level of stunted children, but also to the still enormous differences in sanitation conditions (which are linked to malnutrition). For instance, in 2005/6 the proportion of families without toilet facilities was 74% in rural areas and 17% in urban areas.

To understand the cost of the triple burden to the Indian population, the TCI has used DALYs (Disability-adjusted life-years; e.g., the number of years of life lost due to ill-health, disability, or early death) to quantify the loss in life expectancy due to major diseases associated with malnutrition. We learned among other findings that although there is persistently high prevalence of communicable diseases during the first years of life, mostly associated with such infectious diseases as diarrhea among children, a high proportion of lives lost during adulthood are due to non-communicable diseases, especially cardiovascular diseases. If infections and parasitic diseases, which are almost eradicated in developed countries, were eliminated in India, average life expectancy at birth might well increase by 2.24 years. Furthermore, stamping out circulatory diseases might have an even greater impact. The absence of this group of diseases would contribute to augmenting life expectancy at birth by 7 years. These results are consistent with the data collected by the Million Death Study, which verifies that nowadays cardiovascular disease is not an exclusive problem of high-income regions in India, but also affects lower-income regions such Bihar and UP. The NFHS also reported an impressive increase in overweight/obesity in Bihar, with rates almost doubling within a decade (from 2005 to 2015).

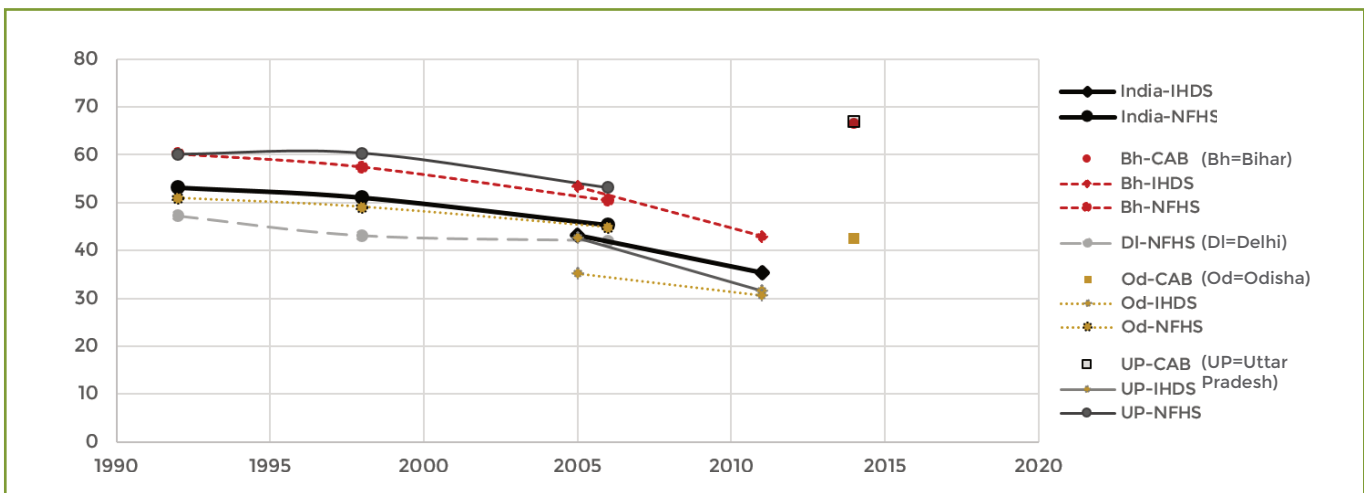We note, then, a close association between

Figure 1. Prevalence of stunting in children under age 3 response.

malnutrition and disease burden. Given the loss of life and loss in life expectancy resulting directly from malnutrition and indirectly from the associated increased frequency and intensity of disease, India must enhance its public health, nutrition, and agriculture policies. Relying on economic performance to improve social outcomes is insufficient. Moreover, India's public policies should not concentrate exclusively on reducing the proportion of the population that is stunted; halting the increase in overweight and obesity trends would be a huge benefit. Likewise, India must improve its efforts to attain a more comprehensive database of malnutrition indicators. This would add a great value to understanding the triple burden phenomena in India and its states. Consistent, higher-quality data help us track trends and assess the efficacy of the ongoing efforts. We must identify the types of malnutrition on which we have made the least progress so that we can reallocate public resources to them (Haddad 2016). Less targeted public policies and less strategic investments will be produced in the absence of a clear map of the malnutrition situation. In the meantime, we must do the best we can with the data that exists.

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FAO (Food and Agriculture Organization of the United Nations). 2015. "The State of Food Insecurity in the World: Meeting the 2015 International Hunger Targets: Taking Stock of Uneven Progress." FAO, Rome.

Haddad, L. 2016. "Data: What India Needs to End Malnutrition by 2030." Development Horizons blog. http://www.developmenthorizons.com/2016/07/data-what-india-needs-to-end.html
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