

GROWTH CHARTS — WHO STANDARDS VERSUS INDIA CRAFTED

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‘A number of countries with similar or even poorer economic conditions, including those in the South Asian region, have shown higher improvements in stunting prevalence using the same WHO-MGRS standards’ | Photo Credit: Getty Images/iStockphoto

High levels of child undernutrition have been a persistent problem in India. It is well recognised that the determinants of undernutrition are multiple, and include food intake, dietary diversity, health, sanitation, women’s status and the over-arching context of poverty. The most common measures of childhood undernutrition are based on anthropometric standards such as height-for-age (stunting/chronic undernutrition) and weight-for-height (wasting/acute undernutrition). Monitoring these is key to tracking progress in terms of actual outcomes. India, like most other countries, uses the globally accepted World Health Organization (WHO) Growth Standards to measure malnutrition. However, there is an emergent debate on a number of issues related to the use of these growth standards in India, [some of which are discussed below](#).

The WHO standards are based on a Multicentre Growth Reference Study (MGRS) that was conducted in six countries between 1997 and 2003 (Brazil, Ghana, India, Norway, Oman and the United States). The purpose was to determine the pattern of growth (from birth to five years) of children who did not face any known deficiencies in their environments. The references that were previously used (WHO-National Center for Health Statistics references) were based on children only from the U.S., many of whom were not breastfed but formula-fed. The MGRS took a prescriptive approach, with the specific aim of setting growth ‘standards’ (how children ought to grow, provided they have a healthy environment) and not growth ‘references’ (how children of the reference group grow). The sample for India in the MGRS was drawn from a set of privileged households living in South Delhi, of children who met all the eligibility criteria for the study including having a ‘favourable’ growth environment, being breast-fed and having non-smoking mothers.

Some researchers who have analysed data from other surveys for India suggest that these standards overestimate undernutrition. However, such comparisons with other large datasets would only be valid if these could provide samples that meet all the criteria of a favourable environment for growth, as defined by the MGRS. As it happens, an adequate number of equivalent samples are difficult to find in large-scale surveys in India given the high levels of inequality as well as the underrepresentation of the rich in these datasets. For instance, even among children (six-23 months) in households of the highest quintile in National Family Health

Survey (NFHS)-5 (2019-21), only 12.7% meet the requirements of a 'minimum acceptable diet' as defined by WHO. While almost all mothers in the MGRS sample had completed more than 15 years of education (in 2000-01), 54.7% of women in NFHS-5 had completed 12 or more years of schooling.

Such comparisons could also be misleading because the study norms of the WHO-MGRS were very different from these prevalence studies. For example, the MGRS included a component of counselling to ensure appropriate feeding practices, which is obviously missing in the NFHS or Comprehensive National Nutrition Survey. In fact, once it is understood that the MGRS sample was for the purpose of setting prescriptive standards, most of the sampling concerns are resolved. Some further issues raised vis-à-vis the MGRS methodology such as pooling of data from different countries have been discussed in detail [in the study reports](#).

Another important set of issues with regard to using the MGRS standards is the difference in genetic growth potential of Indians with respect to others and the influence of maternal heights on child growth. At an individual level, maternal height is undeniably a non-modifiable factor for the growth of her child. Therefore, there is a question of how much improvement is possible in one generation, if at all. However, low average maternal heights are themselves a reflection of the intergenerational transmission of poverty and poor status of women, and, therefore, a measure of an environment of deprivation. An appropriate indicator of a deficient environment, such as stunting, needs to capture this deprivation as well.

Albeit relevant a question still remains on whether the standard is too plastic to be useful, considering these issues of maternal heights and genetic potential. The fact is that a number of countries with similar or even poorer economic conditions, including those in the South Asian region, have shown higher improvements in stunting prevalence using the same WHO-MGRS standards. Regional differences within India, both in the prevalence of stunting as well as increases in adult heights, also indicate that some States such as Odisha, Chhattisgarh, Tamil Nadu and Kerala are achieving much faster reductions than others. It also needs to be considered that gene pools also shift at the population level with greater socio-economic development — a fact demonstrated by the growing average heights of countries such as Japan, refuting the immutability of genetic potential.

Another serious concern is related to inappropriately high standards leading to a misdiagnosis of the situation, and a resultant potential overfeeding of misclassified children under programmes of the government introduced to address undernutrition, thereby resulting in an increase in overweight and obesity. This is a worry, given the increasing burden of non-communicable diseases (NCDs) in India. Nevertheless, given the dietary gaps that children have and the poor coverage of schemes such as mid-day meals and supplementary nutrition in anganwadis, such fears appear largely unwarranted. Indeed, the quality of the meals under these schemes must be improved to ensure that they are not cereal-heavy, include all nutrients, and contribute to dietary diversity. Recommendations such as including eggs in meals for children and pulses in the Public Distribution System must be acted upon urgently. It is also well understood that along with improving diets, multiple interventions such as better sanitation, access to health care, childcare services and so on are required for better nutritional outcomes.

There is also no doubt that there are also many gaps to fill in the more distal determinants of stunting, mainly; livelihoods and poverty, access to education and women's empowerment. These goals are inextricably linked to the overall development of the country, with equitable distribution of resources. Their reflection in anthropometric indicators only enhances the importance of these summary indicators rather than detract from it. It is relevant to acknowledge that individual children grow uniquely, and trained child health personnel such as treating physicians can apply judgement calls on the interpretation of growth charts in the context of

individual children in their care. What these standards are used for are mainly to understand population trends. Using the appropriate standards is also important for international comparisons and intra-country trends — an advantage that would be lost with any new country-specific standard.

In light of these discussions, the Indian Council of Medical Research has constituted a committee to revise the growth references for India. It has been reported that this committee has recommended a detailed rigorous study to be conducted across the country to examine child growth with the purpose of devising national growth charts, if necessary.

Yet, while acquiring newer, and more precise information on child growth is a welcome move — considering our high aspirations of reaching development to every last person by 2047 and its advantages of comparability — it seems logical to stick to the aspirationally high but achievable standards suggested by the WHO-MGRS.

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