EDITORIAL

If you can't fix the problem, change the standards

SIDDHARTH JOSHI, VEENA SHATRUGNA

Over the last few months, established data systems in India have been the target of heated dispute, chiefly by members of the Economic Advisory Council to the Prime Minister, ranging from the inflation numbers [1], to the sampling frame for surveys done by the National Sample Survey Organisation (NSS), the National Family Health Survey (NFHS) and the Periodic Labour Force Survey (PLFS)[2], haemoglobin cut-offs for anaemia [3] and childhood growth standards, female labour force participation rate and life expectancy at birth [4]. The attempts to revise economic data systems has invited a raging debate [5, 6], prompting the government to set up a panel to review the NSS's methodology. However, the arguments being made in favor of downward revision of nutritional standards have received much less scrutiny, except for a recent editorial which comments on the general problem of drawing up standards [7]. This is despite the fact that these proposals have already caught the fancy of the government. A policy decision has already been taken to discontinue gathering of data on Hb-levels as part of the quinquennial National Family Health Surveys, which would now be collected as part of a new Dietary and Bio-markers Survey. Neither the rationale for such a move, nor the details of the methodology of the new survey, or the time-frame within which such data would be released have been made available for public deliberation. Similarly, discussions have been initiated on devising "indigenous" growth standards for children [8]. Hence, it becomes imperative to examine the basis of these renewed calls for revision of existing standards.

The latest attempts at revising nutritional and health standards, specifically haemoglobin cut-offs [9] and growth standards for children and adolescents [10, 11] recycle old and discarded arguments, viz. Indians, as a population, are different from the population of the western countries, and hence universal standards derived from the nutritional health status attained by populations of western countries are not suitable for Indians. A similar debate was raked up by Panagariya [12], where he tried to make a case for Indians being genetically shorter and lighter, not by bringing new data to the debate, but by arguing that when India is doing much better than sub-Saharan Africa on other development indices like per capita income, life expectancy and mortality rates, then the only reason for not meeting the existing anthropometric standards could be that Indians are genetically smaller. These arguments were put to rest by members of the Right to Food Campaign and Jan Swasthya Abhiyan in their response [13], where they pointed out that there need not be a linear relationship between overall development indicators, including mortality rates and child growth patterns. Death is only an extreme consequence of undernutrition.

Till 2008, India had been using the WHO-recommended *reference* developed by the National Centre of Health Statistics (NCHS) of the United States Centre for Disease Control and Prevention in the year 1977 for monitoring of infant heights and weights. These were adopted in India after several attempts at constructing separate "Indian standards". It was soon realised that such an attempt was ill-conceived because it was found that children from high income groups grew as well as the children from developed countries to meet NCHS reference requirements [14,15,16]. In the 1990s, WHO initiated a review of existing NCHS references because these were derived from a narrowly-defined population from just one country (the US) and the studies conducted subsequent to the development of NCHS references indicated divergence in the infant growth pattern from the NCHS references because of dietary reasons (eg inclusion of non-breast fed children in the sample used to determine the NCHS reference) [17]. The WHO review recommended the development of fresh standards based on an international sample of healthy breast-fed infants without any socio-economic constraints to growth. This led to the initiation of the Multi Growth Reference Study (MGRS) conducted across six sites viz. Brazil, Ghana, India, Norway, Oman and the USA over the period 1997-2003 [18], and culminated in the development of the 2006 WHO growth *standards* (prescriptive as opposed to the descriptive references used earlier), which were subsequently adopted in India.

The study population was selected using carefully chosen cross-site and site-specific selection criteria. For example, before identifying the study population for MGRS in India, a survey was conducted in South Delhi to identify socio-economic

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characteristics that could be used to select groups whose growth was not environmentally constrained [19]. Based on the survey, in addition to health-related exclusion criteria (perinatal morbidity and breast-feeding practices), the criterion of at least one parent's education being equal to or more than 17 years was used to screen for the study sample. A longitudinal sample for infants of age 0-24 months and a cross-sectional sample for infants of age 18-72 months [20] was selected from this study population. An assessment of the linear growth patterns from birth to 5 years observed among the children selected for the study across these six sites showed strong similarities, indicating that children from developing countries had similar potential for growth to those from developed countries [21].

Contrast this with the latest attempts to suggest that the growth curves arrived at by the MGRS study overestimate growth deficits among Indian children. Both Subramanian [10] and Ghosh et al [11], instead of relying on data measurements from carefully selected study populations, use data from population-wide surveys like NFHS and Comprehensive National Nutrition Survey (CNNS) to arrive at their version of a study population by applying available exclusion criteria. This is problematic at several levels. *Firstly*, repurposing large-scale survey data allows for a much lower level of control and monitoring over the sample. For example, in the MGRS study, follow-up visits were made to the infants recruited for the longitudinal sample to detect non-adherence to recommended breast-feeding practices. No such control is possible with repurposed data from surveys like NFHS and CNNS. *Secondly*, as is well known and being increasingly highlighted by some of the critics of present data systems, these large sample surveys have a much lower response rate among families belonging to the higher socio-economic strata, and therefore it is unlikely that there is any overlap between the study sample thrown up by a carefully chosen study population (high-end South Delhi neighbourhoods, for example) and those arrived at by using top quintiles of large-scale surveys like NFHS and CNNS. To illustrate, for the Indian sample selected for the MGRS study, the longitudinal sample (n=301) had a median monthly family income of Rs 45,000 (in 2002) and 90.4% of the families owned cars; while in the cross-sectional sample (n=1490), the median monthly family income was Rs 37,250 and 92.7% owned cars [18]. In contrast, both NFHS and CNNS do not collect income data and rely on asset ownership-based wealth scores to define wealth quintiles, wherein ownership of popular items like washing machines and scooters can qualify a household for the top quintile. Further, in the analysis done by Ghosh et al [11], based on pooled data from NFHS and CNNS, there is a lot of divergence between the growth curves for different Indian states, indicating that the numbers thrown up by their methodology, reflect progress made by various states in improving nutritional outcomes, rather than any inherent genetic difference. If one is to follow their own absurd logic, would we now need separate standards for different Indian states? What next? Customisation of standards to the district-level?

The attempt by Sachdev et al [9] to argue for lower haemoglobin cut-offs for anaemia for India (by 1.5–2gms), suffers from similar shortcomings. CNNS data, used by the study, was gathered as part of a study designed to capture Hb-levels (among other markers) across the whole infant population. Repurposing this data based on limited biochemical markers captured during the survey, which was not designed for a standard-making exercise, runs the risk of deriving anaemia standards from a population known to have high levels of anaemia. A reasonable attempt at re-evaluating Hb cut-offs would require selection of a study population based on strict socio-economic and dietary criteria which are known to be correlated with the best attainable Hb-levels. But this is missing in Sachdev et al [9], partly because of data limitations arising out of the repurposing of available data. Consequently, in the final sample that Sachdev et al [9] use to arrive at their cut-offs, over 35% of the children belong to the poorest, poor or middle wealth quintile and the Z-scores for height-for-age and weight-for-age are –1.2 each indicating that at least some percentage of the children in the sample may even be malnourished (See: Supplementary Table 1 of Appendix 5 in Sachdev et al [9]). Clearly, such a methodology is ill-suited to any serious standard-making exercise, but the alarming pace at which these flawed results were picked up by Economic Advisory Council (EAC) members, prompted over 260 clinicians and practitioners to endorse a detailed critique of the paper and its conclusions [22]. Several of these signatories expressed their anguish, and even anger, at this foolhardy suggestion, which completely ignores implications for clinical practice.

Lowering Hb cut-offs for anaemia can have disastrous long term consequences. It has the potential of making young inexperienced medical practioners complacent, as they would not be required to treat pregnant women with Hb of 9–10.5gms. At these levels, problems of heavy bleeding in the 3rd trimester leading to intrauterine deaths, and even maternal mortality due to postpartum bleeding are not uncommon. Nutritional anaemia, which is what most Indian women suffer from, is a further case in point, in that the spectrum of management always includes a good quality and quantity diet. As the severity of anaemia increases from mild to moderate to severe, the treatment additionally includes iron supplements, iron injections and blood transfusions. If a woman presents to the healthcare system with mild to moderate anaemia (9–11gms), ideally, a doctor would advise her to increase her intake of iron rich foods (organ meat, red meat, dark green leafy vegetables, other meats), and deworming and prophylactic iron tablets. With the lower cut-offs suggested by Sachdev et al [9], an entire population of women will now get labeled as NORMAL [22].

So, by lowering cut-offs, doctors would effectively end up delaying or denying preventive and primary care to women with mild

or moderate anaemia. An advantage of treating early anaemia with diet is that other nutritional deficiencies such as that of Vitamin A, zinc, protein etc can be prevented/managed simultaneously. This advantage would also be lost. Anaemia is important not just for statistical data, but because of its clinical consequences, as can be attested to by clinicians and obstetricians working in remote rural and tribal health facilities — where there are limited blood banks; when women in labour present with bleeding and/or heart failure; and when they are faced with the daunting task of shifting women to tertiary hospitals and blood banks that are several kilometres away [22].

Matters as serious as modification of cut-offs for anaemia need a thorough discussion with the fraternity of medical practitioners before tentative and loose conclusions are peddled as settled facts by economists in newspapers, and made the basis of major policy changes like revision of growth standards or discontinuation of collection of data on Hb-levels from the NFHS survey, which has been a source of comparable data on anaemia levels for the past two and half decades.

What ought to be clear from the above arguments is that these attempts at lowering the health and nutritional standards are ill-conceived and reveal a complete disregard of their far-reaching consequences on the most vulnerable children and women. Furthermore, they are downright unethical. India has been making steady, albeit slow, progress towards meeting these standards. To illustrate, according to an analysis of the data collected by the National Nutrition Monitoring Bureau (NNMB) over a period of three decades (1975-79 to 2011-12), Mamidi et al [23] conclude that there is a secular increase in height in India which is strikingly similar to the trend seen in developed countries. Under-5 stunting rates across the states for which data was collected across all rounds, has reduced at the rate of 1.35% per year, with the highest improvement rate in Tamil Nadu (1.63% per year), followed by Kerala (1.46% per year) [23]. Thus, efforts need to be directed towards increasing the pace of improvement instead of diluting the standard so that we can sweep the problem under the carpet. We must celebrate the fact that given ideal conditions, Indians are capable of standing tall with the rest of the developed world; their haemoglobins and heights do not have to be dumbed down for a temporary show of numbers. India was most unique among the developing countries that emerged out the experience of colonialism, in building a robust national statistical system under the leadership of PC Mahalanobis [24], and some of the richest nutritional data in India was generated and disseminated by the NNMB initiated at the National Institute of Nutrition, Hyderabad, under the leadership of Dr C Gopalan. Bearing in mind that these arguments for "re-examination" of existing systems and standards are being made by those who have the confidence of the very government which has disbanded NNMB without putting anything else in its place [25], discontinued collection of consumer expenditure data which used to provide comparable poverty estimates, and has indefinitely delayed Census operations, these attempts should not be seen as innocuous academic exercises.

References

1. Debroy B, Sinha A. 'How the CPI (Consumer Price Index) basket conceals the inflation picture,' *The Hindu*, June 13, 2023 Jun 13[Cited 2023 Aug 14]. Available from: https://www.thehindu.com/opinion/op-ed/how-the-cpi-basket-conceals-the-inflation-picture/article67071555.ece
2. Ravi S. Shamika Ravi writes: Our national surveys are based on faulty sampling. *The Indian Express*. 2023 Jul 7 [Cited 2023 Aug 15]. Available from: https://indianexpress.com/article/opinion/columns/shamika-ravi-writes-our-national-surveys-are-based-on-faulty-sampling-8799300/
3. Sanyal S, Dudani C. Anaemia: A weak case. *The Economic Times*. 2023 Apr 19 [Cited 2023 Aug 14]. Available from: https://economictimes.indiatimes.com/opinion/et-commentary/anaemia-a-weak-case/articleshow/99473960.cms?from=mdr
4. Sanyal, S, Arora, A and Chauhan, S. Reversing the Gaze: Re-examining Estimates of India's Development Indicators by International Organisations; 2023, EAC-PM Working Paper Series. EAC-PM/WP/14/2023 (March 2023).
5. Sen P. Pronab Sen responds to Shamika Ravi: No, India's statisticians aren't stupid. *The Indian Express*. 2023 July 11 [Cited 2023 Aug 14]. Available from: https://indianexpress.com/article/opinion/columns/criticism-of-sample-surveys-is-misplaced-their-data-differ-from-census-count-because-definitions-are-different-8822347/
6. Mohanan PC, Kundu A. Narrative in search of data. *The Indian Express.* 2023 Jul 12[Cited 2023 Aug 14]. Available from: https://indianexpress.com/article/opinion/columns/india-population-urban-rural-polulation-growth-difference-population-census-8827669/
7. Krishnan A. Classifying 'Normal' in health and nutrition: complicated, confusing and controversial! *Curr Sci.* 2023 Jul 25 [Cited 2023 Aug 14]; 125(2): 111-2. Available from: https://www.currentscience.ac.in/Volumes/125/02/0111.pdf
8. Nagarajan R. Govt gets moving on desi stunting standards. *The Times of India*. 2023 Aug 3 [Cited 2023 Aug 15]. Available from: https://timesofindia.indiatimes.com/india/govt-gets-moving-on-desi-stunting-standards/articleshow/102368398.cms?from=mdr
9. Sachdev HS, Porwal A, Acharya R, Ashraf S, Ramesh S, Khan N, et al. Haemoglobin thresholds to define anaemia in a national sample of healthy children and adolescents aged 1–19 years in India: a population-based study. *Lancet Glob Health*. 2021 Jun 1;9(6):e822-31. https://doi.org/10.1016/s2214-109x(21)00077-2
10. Subramanian SV, Khailkar A, Karlsson O. Should India adopt a country-specific growth reference to measure undernutrition among its children? *Lancet Regional Health-Southeast Asia*. 2023 Feb 1;9. https://doi.org/10.1016/j.lansea.2022.100107
11. Ghosh S, Majumder R, Sachdev HS, Kurpad AV, Thomas T. Customization of WHO Under-five Growth Standards for an Appropriate Quantification of Public Health Burden of Growth Faltering in India. *Indian Pediatrics*. 2023 Jun 21[Cited 2023 Aug 14]:S097475591600556. Available from: https://pubmed.ncbi.nlm.nih.gov/37551873/
12. Panagariya A. Does India really suffer from worse child malnutrition than sub-Saharan Africa? *Econ Pol Wkly.* 2013 May 4:98-111.
13. Gupta, A., Patnaik, B., Singh, D., Sinha, D., Holla, R., Srivatsan, R., Jain, S., Garg, S., Dand, S., Nandi, S., Prasad, V. and Shatrugna, V. Are child malnutrition figures for India exaggerated? *Econ Pol Wkly*. 2013 Aug 24;48(34):73-7.
14. Habicht JP, Yarbrough C, Martorell R, Malina R, Klein R. Height and weight standards for preschool children: how relevant are ethnic differences in growth potential?. *Lancet*. 1974 Apr 6;303(7858):611-5.
15. Shatrugna V. The Career of Hunger: Critical Reflections on the History of Nutrition Science and Policy. In Zachariah A, Srivatsan R, Tharu S, editors. *Towards a Critical Medical Practice: Reflections on the Dilemmas of Medical Culture Today.* New Delhi: Orient BlackSwan; 2010: 116-35.
16. World Health Organization. Physical status: The use of and interpretation of anthropometry, Report of a WHO Expert Committee. WHO Technical Report Series, No. 854. World Health Organization; 1995.
17. Anderson MA, Dewey KG, Frongillo E, Garza C, Haschke F, Kramer M, Whitehead RG, Winichagoon P, Deonis M. An evaluation of infant growth-the use and interpretation of anthropometry in infants. *Bull World Health Organ*. 1995;73(2): 165-74.

18. WHO Multicentre Growth Reference Study Group, de Onis M.a. Enrolment and baseline characteristics in the WHO Multicentre Growth Reference Study. *Acta Paediatrica*. 2006 Apr;95:7-15.
19. Bhandari N, Bahl R, Taneja S, Onis MD, Bhan MK. Growth performance of affluent Indian children is similar to that in developed countries. *Bull World Health Organ.* 2002;80:189-95.
20. Bhandari N, Taneja S, Rongsen T, Chetia J, Sharma P, Bahl R, Kashyap DK, Bhan MK. Implementation of the WHO Multicentre Growth Reference Study in India. *Food and Nutrition Bulletin*. 2004;25(1_suppl_1):S66-71.
21. WHO Multicentre Growth Reference Study Group, de Onis M.b. Assessment of differences in linear growth among populations in the WHO Multicentre Growth Reference Study. *Acta Paediatrica*. 2006 Apr;95:56-65.
22. Karpagam S, Shatrugna V, Joshi S. Nutrition Revolution by Reducing Hemoglobin Cut-offs? Anemia is not a Numbers Game. 2023[Cited 2023 Aug 14]. Available from: https://tinyurl.com/hbnote
23. Mamidi RS, Rajkumar H, Radhakrishna KV, Babu JJ. Secular trends in heights and weights in boys and girls over 3 decades in rural India. *Food and Nutrition Bulletin*. 2016 Sep;37(3):425-38.
24. Menon N. Planning democracy: How A professor, an institute, and an idea shaped India. Penguin Random House India Private Limited; 2022.
25. Krishnan V. Nutrition bureau axed, anti-poverty schemes starved. *The Hindu*. 2015 Oct 9[Cited 2023 Aug 14]. Available from: https://www.thehindu.com/news/national/national-nutrition-monitoring-bureau-axed-antipoverty-schemes-starved/article7815511.ece

EDITORIAL

Reducing the risks of nuclear war — the role of health professionals

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In January, 2023, the Science and Security Board of the Bulletin of the Atomic Scientists moved the hands of the Doomsday Clock forward to 90 seconds before midnight, reflecting the growing risk of nuclear war [1]. In August, 2022, the UN Secretary-General António Guterres warned that the world is now in "a time of nuclear danger not seen since the height of the Cold War" [2]. The danger has been underlined by growing tensions between many nuclear armed states [1,3]. As editors of health and medical journals worldwide, we call on health professionals to alert the public and our leaders to this major danger to public health and the essential life support systems of the planet — and urge action to prevent it.

Current nuclear arms control and non-proliferation efforts are inadequate to protect the world's population against the threat of nuclear war by design, error, or miscalculation. The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) commits each of the 190 participating nations "to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control" [4]. Progress has been disappointingly slow and the most recent NPT review conference in 2022 ended without an agreed statement [5]. There are many examples of near disasters that have exposed the risks of depending on nuclear deterrence for the indefinite future [6]. Modernisation of nuclear arsenals could increase risks: for example, hypersonic missiles decrease the time available to distinguish between an attack and a false alarm, increasing the likelihood of rapid escalation.

Any use of nuclear weapons would be catastrophic for humanity. Even a "limited" nuclear war involving only 250 of the 13000 nuclear weapons in the world could kill 120 million people outright and cause global climate disruption leading to a nuclear famine, putting 2 billion people at risk [7,8]. A large-scale nuclear war between the USA and Russia could kill 200 million people

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