

The Lancet Global Health

A statistical misinterpretation that inflates the burden of dietary inadequacy

--Manuscript Draft--

Manuscript Number:	LANGLH-D-24-01641
Article Type:	Correspondence
Keywords:	Dietary inadequacy, Average Requirement
Corresponding Author:	Anura V Kurpad, MBBS, MD, PhD, FRCP, FAMS, FASc, FIUNS Saint John's Medical College Bangalore, Karnataka INDIA
First Author:	Santu Ghosh, PhD
Order of Authors:	Santu Ghosh, PhD
	Tinku Thomas, PhD
	Harshpal Singh Sachdev, FRCPCH
	Anura V Kurpad, FRCP
Manuscript Region of Origin:	INDIA

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We appreciate the work of Passarelli et al¹, but fear that this might have been a Sisyphean effort. They state that the global prevalence of inadequate dietary intakes of specific nutrients is very high, but in reality, have only calculated the *risk of inadequacy*, not actual inadequacy. This misinterpretation is alarmist. The prevalence of *risk* of inadequate nutrient intakes in a population is obtained by evaluating whether the probability of a random requirement would be more than a random intake. However, this proportion represents an average of the *risk of inadequate intake*², not an actual inadequate intake, as reported.

Another issue relates to the ‘threshold’ for population risk of inadequacy. A population is considered to be eating normally if the distribution of its usual nutrient intakes converges onto the distribution of its requirements, such that the probability of inadequate intakes is 50%. This is the ‘threshold’ of population inadequacy²; thus values over 50% are of concern. Passarelli et al¹ consider the entire probability in their estimates, and this is inflationary. For example, the population at *risk of inadequacy* of iodine should be 1.35 million instead of the 5.1 million ‘inadequate’ reported. The considerable risk of under-reported intakes should also be explicitly pointed out.

Examinations of population dietary inadequacy should be made with restraint, using appropriate physiological insights coupled with functional consequences. The true *risk* of deficient micronutrient intakes needs to be appropriately communicated to all stakeholders to avoid knee-jerk industrialisation of food systems with unnecessary and possibly harmful micronutrient fortification.

¹Santu Ghosh, ¹Tinku Thomas, ²Harshpal Singh Sachdev, and ¹Anura V Kurpad*

*a.kurpad@sjri.res.in

¹St John’s Medical College, Bangalore, Karnataka, India. ²Sitaram Bhartia Institute of Science and Research, New Delhi, India.

References

1. Passarelli S, Free CM, Shepon A, Beal T, Batis CM, Golden CD. Global estimation of dietary micronutrient inadequacies: a modelling analysis. *Lancet Glob Health*. Aug 29 2024; DOI: 10.1016/S2214-109X(24)00276-6
2. Ghosh S, Thomas T, Pullakhandam R, Nair KM, Sachdev HS, Kurpad AV. A proposed method for defining the required fortification level of micronutrients in foods: An example using iron. *Eur J Clin Nutr*. 2023 Apr;77(4):436-446. doi: 10.1038/s41430-022-01204-4. Epub 2022 Sep 8. PMID: 36076065.