

Alternatives to Global Hunger Index

A. K. Nigam

*Consultant Advisor, Institute of Applied Statistics and Development Studies, (IASDS),
Lucknow*

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Abstract

Recent research has established that Global Hunger Index (GHI) is flawed and is, therefore, not suitable for measuring the status of hunger. The work by Nigam and Co-workers (2016, 2018, 2019) showed that estimates of GHI have high upward bias. The extent of bias is substantial as hunger is a very small part of undernutrition and mortality.

Following the importance of the work, ICMR constituted an Expert Committee of eminent Statisticians, Pediatricians, and Public Health Experts to review the suitability of indicators used in the GHI. The Expert Committee in its unanimous Report observed that GHI does not measure hunger per se, and ranking countries using GHI is not appropriate. A White Paper by Padam Singh *et al.* (2021) also appeared in ICMR Journal highlighting these results. The findings were presented on request in different organizations like DWCD, NAAS, NITI Aayog and PMO and were approved.

There is, therefore, a need to examine alternative ways to measure hunger. Survey based USAID's Food and Nutrition Technical Assistance (FANTA, 2001) related Food Access Survey Tools (FAST, 2003) and Modified FAST (MFAST) by Institute of Applied Statistics and Development Studies (IASDS) have shown lot of promise. They allow us to assess hunger through lack of access and anxiety. This was validated by USAID in Bangladesh using FAST and in Banda district by IASDS using MFAST. Thus, survey-based approach needs to be further probed. To this, we may add data through dietary and consumption surveys for evaluating quality, quantity and frequency of consumption.

Key Words: Food insecurity; Hunger; Global Hunger Index; MFAST; Access; Anxiety; Dietary intakes.

1. Introduction

The end of hunger is one of the United Nations Sustainable Development Goals (SDGs). Measuring hunger itself is a complex issue. Hunger is defined in different ways by international organizations like Food and Agriculture Organization (FAO), World Health Organization (WHO), and World Food Program (WFP). These are: lack of food, food and nutrition insecurity, reduced food intakes with physical sensation caused by lack of food, constant worries where and when their next food will come from and chronic undernourishment. In long time hunger leads to undernutrition/mortality. While hunger leads to undernutrition, absence of hunger does not necessarily imply absence of undernutrition.

Global Hunger Index (GHI) was developed by International Food Policy Research Institute (IFPRI) to measure and compare hunger in different countries. It is the arithmetic mean of

- % undernourished population,
- % stunted children of under five years
- % wasted children of under five years, and
- % mortality rate of under five children.

All the indicators are standardized and assigned equal weights.

The work by Nigam and Co-workers (2016,2018,2019) showed that estimates of GHI have high upward bias and have many limitations. The extent of bias is substantial as hunger is a very small part of undernutrition and mortality.

Following the importance of the work, ICMR constituted an Expert Committee of eminent Statisticians, Pediatricians, and Public Health Experts to review the suitability of indicators used in the GHI. The Expert Committee in its unanimous Report observed that GHI does not measure hunger per se, and therefore, ranking countries using GHI is not appropriate. A White Paper by Padam Singh et al (2021) also appeared in ICMR Journal highlighting these results. The findings were presented on request in different organizations like DWCD, NAAS, NITI Aayog and PMO, and were approved. It was therefore necessary to look for alternative ways to measure hunger.

Before describing alternative ways, it may be desirable to discuss limitations of GHI.

- Estimates of GHI have an upward bias: hunger implies undernutrition though undernutrition does not imply hunger. Similarly, under-5 mortality may have reasons other than hunger.
- Upward bias in GHI has serious implications. It pushes up the hunger estimate. The extent of bias is likely to be substantial as hunger is most likely to be a small part of under-nourishment, under-nutrition and mortality.
- It is not possible to theoretically evaluate the bias because of the confounding between indicators and hunger. It may only be possible to evaluate the bias empirically through large data sets.
- It has the problem of multiple counts; Masset (2011) showed earlier that it has the problem of double counts.
- It ignores lack of access and anxiety though this is how hunger is defined.
- Arithmetic mean (with equal weightage) of indicators having extreme values.

2. Alternatives to GHI

‘Zero’ hunger is one of the very important goals of Sustainable Development Goals. We look for good quality survey-based data which capture access and anxiety through indicators having a direct bearing on hunger and reinforce it by dietary intakes of important food stuffs and other variables. For the first two types, we may have the following routes:

- survey based behavioral responses-based indicators on access and anxiety.

- dietary intakes of important food stuffs like cereals, pulses and fats & oils as the major sources of energy, protein and micronutrients.

Presently, for survey based behavioral responses available options are:

- FAO's Food Insecurity Experience Scale (FIES)
- USAID's Food and Nutrition Technical Assistance (FANTA) based Food Access Survey Tools (FAST) and its modified version (MFAST) by IASDS.

Recently, Ministry of Statistics and Programme Implementation (MoSPI) and FAO, jointly organized a virtual workshop on FIES to discuss various methodological issues at facilitating the design of pilot surveys that will be undertaken in selected States and districts to ascertain the applicability of this tool in the Indian context. This indicates that FIES is still in the pre-validation stage and therefore has to be ruled out for further consideration.

Among the other options, FANTA was validated using FAST in Bangladesh, 2003. MFAST was also validated by IASDS in Banda district, India, 2010. Both FAST and MFAST had 9 questions seeking behavioral responses for individuals/households experiencing food insecurity.

A study of 600 FAST and 8953 comparable households by Nigam (2018, 2019) indicated that access and anxiety are measurable. Results of the two are not much different.

The questions used in MFAST were:

1. The family ate few meals per day on a regular basis;
2. Obligated to eat non-preferred instead of preferred food;
3. Sometimes food stored in the house ran out and no cash to buy;
4. Worried frequently about where the next meal would come from;
5. Needed to purchase food frequently (because own production or purchased stores ran out);
6. Took food on credit from a local store;
7. Needed to borrow food from relatives/neighbors to make a meal;
8. Needed to borrow food in order to meet social obligations
9. Members of the household who had to skip the meal due to lack of food: (i) working adult, (ii) house-wife, (iii) both, (iv) elderly persons, and (v) children

Questions 3-9 together provide food insecure households with hunger. Question 9 gives individual level hunger. It reflects severe form of hunger. Questions 3-4 give anxiety.

A close look into 9 questions reveals that these can be remodeled in to the following 3-question module:

1. The family ate meals per day on a regular basis for the last 15 days.
2. Worried frequently (at least once in the last 15 days) about where the next meal would come from as the food stored in the house ran out and no cash to buy more
3. Had to take food on credit from a local store/relatives or neighbors (at least once in the last 15 days) to make a meal for the family or to serve a meal to guests or relatives

For value addition, we may ask about Members of household who had to skip the meal due to lack of food: (i) working adult, (ii) house-wife, (iii) both, (iv) elderly persons, and (v) children.

This type of MFAST can easily be regularly canvassed by agencies like National Statistical Office (NSO) in India and by similar survey agencies across the countries. It has the potential of being part of the consumption surveys of NSO.

More information can be added from secondary data on Public Distribution System (PDS) supply and related variables to assess the access component. Such data can be available from studies like food insecurity and food and nutrition insecurity Atlases which provide data on availability, access and absorption.

Dietary and consumption surveys should be conducted every 3 years. This would allow evaluation of hunger status at a low cost without much difficulty.

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