

# Effectiveness of Nutrition Interventions on World Health Organization Global Nutrition Targets: An Evidence Summary

Sir,

Recognizing that accelerated action is needed to address the problem of undernutrition, the 65<sup>th</sup> World Health Assembly endorsed a comprehensive implementation plan on maternal, infant, and young child nutrition.<sup>[1]</sup> Under this plan, the World Health Organization (WHO) specified six Global Nutrition Targets-reducing stunting and wasting in children under five, halting childhood obesity, reducing anemia in women of reproductive age, reducing low-birth weight (LBW), and increasing the rate of exclusive breastfeeding (EBF) by 2025. These targets aim to identify priority areas and inspire country-level actions.

Since then, these targets were embedded in several policy documents, including the *target 2.2 of the Sustainable Development Goals*, to be achieved by 2030. India's National Nutrition Strategy with the vision of "*Kuposhan Mukh Bharat*" is also aligned with these targets-the National Nutrition Mission (NNM) 2022 targets.<sup>[2]</sup> However, a recent national-level analysis of trends in the malnutrition indicators (from 1990 to 2017) suggested slow and minimal progress in achieving NNM 2022, as well as the WHO 2025 targets.<sup>[3]</sup> Similar trends have been reported for the majority of the low- and middle-income countries (LMICs).<sup>[4]</sup> Worldwide, in 2018, an estimated 149 million children were stunted and 49 million were wasted.<sup>[5]</sup>

To accelerate progress on global nutrition targets in LMICs, there is a need to identify high impact interventions. Numerous nutrition interventions, including nutrition-specific and nutrition-sensitive, have been tested for maternal and childhood outcomes, and several systematic reviews (SRs) have synthesized the evidence on the effectiveness of these interventions. While these individual reviews assess the effectiveness of specific interventions and/or outcomes, this might limit their ability to provide a comprehensive evidence base specific to WHO global nutrition targets. To fulfill this gap, we conducted an evidence summary-"effectiveness of nutrition interventions in LMIC."<sup>[6]</sup> This evidence summary (meta-review) aimed at synthesizing the evidence on the effectiveness of various nutrition interventions on WHO global nutrition targets-related outcomes in LMICs by reviewing the existing SRs in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement.

The population included newborns, infants, children, adolescents, women, adults, and the elderly. The interventions included all nutrition-specific and nutrition-sensitive interventions, as mentioned in the lancet 2013 maternal and child nutrition series framework.<sup>[7]</sup> The outcome measures were the global nutrition targets-stunting, wasting, anemia, low-birthweight, and breastfeeding (we did not include

obesity). We conducted a comprehensive search of 21 databases. A double-blind process was followed for screening, quality appraisal, and data extraction. The extracted data were narratively synthesized in line with the review objective, which involved a detailed examination of the summary findings (positive/no impact/mixed impact).

Our search identified 6597 records, of these, 61 were included in the final analysis. A majority included nutrition-specific interventions ( $n = 57$ ). Most SRs focused on pregnant women, included randomized control trials and were high-medium quality. Table 1 presents a summary of evidence on the effectiveness of nutrition interventions. Overall, 61 SRs examined the impact of 21 nutrition interventions (specific - 18, sensitive - 3) on LBW ( $n = 24$ ), stunting ( $n = 21$ ), wasting ( $n = 18$ ), anemia ( $n = 16$ ), and EBF ( $n = 6$ ).

Only complementary feeding interventions showed evidence of a positive effect on reducing stunting and wasting. Three interventions-iron supplementations during pregnancy, iron-fortified foods, and Vitamin A supplementation showed evidence of a positive effect on reducing anemia among women. Similarly, another three interventions-micronutrient (single or multiple) supplementation/fortification, Vitamin D supplementation and maternal dietary (energy/protein) supplementation also showed a positive effect on reducing LBW. All breastfeeding interventions (peer support, counseling, and kangaroo mother care) showed a positive effect on improving EBF. The details of the effectiveness of these interventions on global nutrition targets are presented elsewhere.<sup>[6]</sup>

Globally, more than half of children between 0 and 5 months are not exclusively breastfed and one in every fifth child between 6 and 23 months is not consuming an adequate diet.<sup>[4]</sup> Unfortunately, either there is no data or low-quality data available (except iron) on implementation and coverage of maternal nutrition interventions-vitamin A, vitamin D, and dietary (energy/protein) supplementation. To be on-track or to fast-track progress on global nutrition targets, policymakers in LMICs could prioritize these interventions.

To conclude, our meta-review identified interventions with evidence of a positive impact on WHO global nutrition target-related outcomes (stunting, wasting, anemia, LBW, and EBF). We hope our evidence summary will provide directions to policymakers, and might inspire the country-level implementation of these interventions.

## Financial support and sponsorship

This work was supported by the SARH (DFID) Systematic Review (SR) Programme for South Asia.

**Table 1: Summary of evidence on effectiveness of nutrition interventions on global nutrition target-related outcome**

Intervention	SRs (n)									
	Stunting		Anemia		Low-birth weight		Breast-feeding		Wasting	
	n	Effect	n	Effect	n	Effect	n	Effect	n	Effect
1. Agriculture	2		2	[-,-]					2	[-,-]
2. Breastfeeding	6						6	[↑,↑,↑,↑,↑,↑]		
3. Calcium	1		1	[-]	1	[-]				
4. Cash transfer	1	1		[-]						
5. Complementary Feeding	2	2		[↑,↑]					1	[↑]
6. Dietary supplementation	1					1	[↑]			
7. Folic acid supplementation	4		1	[-]	4	[-,-,-,-]				
8. Integrated*	1	1		[-]					1	[-]
9. Iron fortification	1		1	[↑]						
10. Iron supplementation	8	2		[-,-]	5	[↑,↑,↑,↑,-]	3	[-,-,-]	1	[-]
11. Magnesium supplementation	1					1	1 [-]			
12. Micronutrient (1 or more)	17	5		[-,-,-,-,-]	7	[↑,↑,-,-,-,-,-]	6	[↑,↑,↑,↑,↑,↔]	4	[-,-,-,-]
13. n-3 PUFA	1					1	[-]			
14. RUTF	2	2		[-,-]					2	[↑,-]
15. School feeding	1	1		[↔]					1	[↔]
16. Supplementary feeding	2	2		[↑,-]					2	[-,-]
17. Vitamin A	1		1	[↑]		1	[-]			
18. Vitamin C and Vitamin E	1					1	[-]			
19. Vitamin D	3					3	[↑,↑,-]			
20. WASH	1	1		[-]					1	[-]
21. Zinc	4	2		[-,-]			2	[-,-]	3	[↑,-,-]
Total	61	21			16		24		6	

\*Nutrition interventions combined with child development interventions. RUTF: Ready-to-use therapeutic foods, PUFA: Poly unsaturated fatty-acids, WASH: Water sanitation and hygiene. Symbols used: [-] no effect, [↑] positive effect, [↔] mixed effect, WHO: World Health Organization, SRs: Systematic reviews

## Conflicts of interest

There are no conflicts of interest.

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#### DOI:

10.4103/ijcm.IJCM\_119\_20

**How to cite this article:** Rana R, Mavalankar DV. Effectiveness of nutrition interventions on World Health Organization global nutrition targets: An evidence summary. *Indian J Community Med* 2021;46:157-8.

**Received:** 26-02-20, **Accepted:** 13-07-20, **Published:** 01-03-21

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