

Association of early interventions with birth outcome and child linear growth in low-income and middle-income countries

Research snapshot¹

The first 1,000 days of life represent a critical window for child development. Pregnancy and the exclusive breastfeeding (EBF) (0-6 months) and complementary feeding (CF) periods have different growth requirements, so separate considerations for intervention strategies are needed. The purpose of this study was to determine the association of interventions with birth and linear growth outcomes based on randomised clinical trials (RCTs) of interventions under the domains of nutrition; deworming; maternal education; and water, sanitation and hygiene (WASH) provided to pregnant women, infants aged 0-6 months and children aged 6-24 months conducted in low and middle-income countries (LMICs) using Bayesian network meta-analyses. Random-effects meta-analyses were performed for each life period and odds ratios were compared on preterm birth and mean differences on birth

weight for pregnancy, length-for-age (LAZ) for EBF, and height-for-age (HAZ) for CF.

Among 302,061 participants in 169 RCTs, several nutritional interventions were found that demonstrated greater association with improved birth and growth outcomes compared with standard care. For instance, compared with standard care, maternal supplements of multiple micronutrients during EBF showed reduced odds for preterm birth (OR, 0.54; 95%CrI, 0.27-0.97) and improved mean birth weight (MeanDiff, 0.08 kg; 95%CrI, 0.00-0.17 kg) but not LAZ (MeanDiff, -0.02; 95%CrI, -0.18 to 0.14). Supplementing infants and children with multiple micronutrients showed improved LAZ (MeanDiff, 0.20; 95%CrI, 0.03-0.35) and HAZ (MeanDiff, 0.14; 95%CrI, 0.02-0.25). Interventions provided to pregnant women generally demonstrated greater associations with improved outcomes than interventions provided to infants and children at later periods.

Findings highlight the importance of intervening early to improve birth outcomes and counter childhood stunting. Findings also reveal that nutritional interventions, micronutrients and food supplements generally showed greater associations with improved outcomes than interventions from other domains. Despite the numerous clinical trials that have already been conducted, more research targeting less explored areas, such as maternal education and WASH, appears to be needed. Research is also needed that combines interventions from multiple domains and tests their effectiveness as a package.

¹ Park, J.J.H., Lan Fang, M., Harari, O., Dron, L., Siden, E.G., Majzoub, R., Jeziorska, V., Thorlund, K., Mills, E., Bhutta, Z. (2019). Association of Early Interventions With Birth Outcomes and Child Linear Growth in Low-Income and Middle-Income Countries: Bayesian Network Meta-analyses of Randomized Clinical Trials. *JAMA Network Open*. 2019;2(7):e197871. doi:10.1001/jamanetworkopen.2019.7871

Practical pathways to integrate nutrition and water, sanitation and hygiene

Research snapshot¹

Interviews were undertaken in Cambodia, Ethiopia and Madagascar and results analysed alongside research and experience of multiple agencies to highlight common entry points for governments and development partners to take integrated action on water, sanitation and hygiene (WASH) nutrition. Results highlighted the need to target WASH interventions to undernutrition hotspots ('convergence' or 'co-

location'); promote the integration of key hygiene behaviours in nutrition interventions; prioritise mothers, newborns and young children as targets for WASH interventions; deliver a minimum package of health, nutrition and WASH services and messaging; strengthen capacity and resourcing of service-delivery platforms and frontline health workers; and ensure regular vertical and horizontal coordination meetings between nutrition stake-

holders from local to national levels. Seven pathways to the success of integration efforts are identified (summarised in Box 1) and illustrated by country examples.

¹ WaterAid and Action Against Hunger (2019). *Practical pathways to integrate nutrition and water, sanitation and hygiene*. Available at washmatters.wateraid.org/practical-pathwaysnutrition-wash

Box 1 Pathways to success

1. Leadership: Secure the highest-level leadership, from the prime minister or president, to drive cross-ministerial coordination and hold line ministries to account for integration of WASH and nutrition.
2. Policies: First, ensure national and regional development plans take a multisector approach to integrating nutrition and WASH interventions, aiming to improve child nutrition. Second, ensure specific policies for nutrition and WASH are coordinated and cross-refer to one another.
3. Financing and strong government systems: Fully finance national WASH and nutrition plans, with clearly defined financing strategies across ministries that support better coordination.
4. Data: Governments and donors must prioritise investments in data systems to enable effective targeting and prioritisation, and reliable monitoring.
5. Sub-national coordination: Replicate strong national coordination mechanisms at sub-national level, ensuring 360-degree accountability.
6. Knowledge sharing: Local authorities, civil society organisations, non-governmental organisations and donors should prioritise documenting and sharing knowledge and experience from integrated WASH-nutrition projects to support governments to adopt and scale up models that work.
7. Accountability: Ensure transparency and accountability: this is key to driving multisector approaches.



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