ABSTRACT

Maternal Nutrition Interventions for Childhood Stunting Prevention in Low- and Middle-Income Countries: A Systematic Review

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Background : Childhood stunting associated with maternal malnutrition remains a challenge in low- and middle-income countries (LMICs), as maternal nutrition during pregnancy influences subsequent stunting risk and fetal growth.

Objective : This systematic review aimed to evaluate the effectiveness of maternal nutritional interventions during pregnancy in preventing stunting and improving child linear growth outcomes in LMICs.

Research Methods/ Implementation Methods : Following PRISMA 2020 guidelines, three databases (PubMed, Scopus, and EBSCO) were searched for randomized controlled trials (RCTs) evaluating maternal nutrition interventions, including lipid-based nutrient supplements (LNS), fortified balanced energy-protein supplements (BEP), wheat-soya blend plus (WSB+), and zinc supplementation, in LMICs reporting stunting or child linear growth outcomes. Of 2,229 records, 1,843 were screened, 32 full-text articles were assessed, and six RCTs were included. Methodological quality was appraised using the JBI Critical Appraisal Checklist for RCTs.

Results : Synthesis of the six RCTs from Pakistan, India, Bangladesh, Indonesia, and Burkina Faso identified two intervention categories with benefits: (1) daily lipid-based nutrient supplements (LNS) initiated before conception or during pregnancy significantly increased birth length (+0.20 cm to +0.57 cm) and LAZ (+0.09 to +0.29), and reduced the risk of stunting at birth by 17–44%; (2) nutrient-dense supplementation (fortified BEP and zinc [20 mg/day]) significantly increased birth length (+0.20 cm to +1.00 cm) and WSB+ reduced stunting at 6 months (15%) in unadjusted, but not adjusted analysis.

Conclusion/Lesson Learned : Maternal nutrition interventions may prevent stunting and promote linear growth in LMICs. Integrating these interventions into routine antenatal care and national health policies is essential for sustainable stunting reduction.

Keyword : Childhood stunting; Linear growth; Lipid-based nutrient supplements; LMICs; Maternal nutrition