

REVIEW ARTICLE

EFFECTIVENESS OF HEALTH EDUCATION ON INFANT AND YOUNG CHILD FEEDING BEHAVIOR TO PREVENT STUNTING IN CHILDREN UNDER 2 YEARS: A SYSTEMATIC REVIEW

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ABSTRACT

Stunting in children under two years remains a critical global health challenge. While health education is a primary strategy, its effectiveness in reducing stunting—as opposed to merely changing behavior—remains debated. This systematic review aimed to evaluate the effectiveness of health education on Infant and Young Child Feeding (IYCF) behaviors and stunting prevention. Following PRISMA 2020 guidelines, a search was conducted in PubMed, Scopus, and ScienceDirect for studies published between 2014 and 2024. Inclusion criteria encompassed Randomized Controlled Trials (RCTs) and non-randomized studies evaluating maternal education. Risk of bias was assessed using Cochrane RoB 2 and JBI tools. Data synthesis was conducted using a narrative approach based on the Synthesis Without Meta-analysis (SWiM) framework. Nine studies met the inclusion criteria (six RCTs, three non-randomized). Narrative synthesis indicated that health education consistently improved Early Initiation of Breastfeeding, Exclusive Breastfeeding, and Dietary Diversity. Interventions combining interpersonal counseling with mass media or utilizing peer counselors demonstrated stronger behavioral impacts. However, the impact on linear growth (HAZ/stunting) was inconsistent. Improvements in nutritional status were more evident when education was integrated with health system strengthening or nutritional supplementation, rather than as a standalone intervention in food-insecure populations. Health education is effective in improving feeding behaviors but has variable capacity to reduce stunting if implemented alone. Behavioral improvements do not necessarily translate into child growth when structural barriers persist. Future policies should integrate education with nutrition-sensitive interventions, such as food security and sanitation, to achieve measurable impacts on child growth.

Keywords: Health education, child nutrition, stunting, breastfeeding, growth and development.

INTRODUCTION

Infants and young children are highly vulnerable to stunting due to their increased nutritional requirements for optimal growth and development. Widespread stunting adversely affects children's physical and cognitive development and increases susceptibility to diseases that are among the leading causes of mortality in children under five years of age.¹ Stunting is closely associated with deficiencies in essential micronutrients, particularly iron and zinc, which remain prevalent in low-income countries.² Although global rates of child malnutrition have declined, they remain unacceptably high and disproportionately affect low- and middle-income countries.³

The World Health Organization (WHO) highlights that stunting is the most prevalent form of malnutrition among children under five years of age, with an estimated 161 million children globally affected by stunting.⁴ Evidence indicates that stunting begins in utero and continues to worsen during the first three years of life.⁵ The majority of stunting cases occur within the first two years of life, a critical period characterized by high nutritional requirements to support optimal growth and development.

Malnutrition during this critical period results in irreversible damage to physical growth, brain development, and increases the risks of morbidity and mortality.⁶ Malnutrition alone is responsible for nearly 45% of all child deaths worldwide.⁷ One of the key determinants influencing the occurrence of stunting is infant and young child feeding (IYCF) practices.⁸⁻¹⁰ Infant and young child feeding (IYCF) practices play a critical role in determining children's nutritional status, optimizing growth velocity during the early years of life, and have substantial potential to reduce malnutrition among under-five children, thereby influencing child mortality rates.¹¹ For example, the National Nutrition Program set a target to increase the prevalence of exclusive breastfeeding by 22% between 2016 and 2020; however, only a 1% increase was achieved by 2019.¹² Inappropriate complementary feeding practices have also been reported in Ethiopia and Zambia, where the proportions of children aged 6-23 months who received foods from more than four food groups per day were 7.1% and 37.1%, respectively. Similarly, inadequate dietary diversity has been observed in Uganda, with only 29.5% of children, and in India,

with 16% of children, receiving four or more food groups per day.¹³

Improving knowledge, attitudes, and practices related to infant and young child feeding (IYCF) is essential for enhancing child health outcomes.¹⁴ One effective strategy to improve knowledge, attitudes, and practices regarding infant and young child feeding is through health education. Health education programs have the potential to improve child health outcomes by addressing misconceptions surrounding traditional IYCF practices and childcare behaviors in low-income settings¹⁴. Although numerous primary studies have been conducted, comprehensive syntheses of how educational interventions can contribute to stunting mitigation through behavioral improvement pathways remain limited and fragmented. Many previous studies focused only on partial outcomes without explicitly linking IYCF behavior change as a proxy mechanism for stunting prevention. This gap limits understanding of the characteristics of interventions that are most effective in resource-limited contexts. Therefore, this systematic review was conducted to evaluate the potential of health education to mitigate stunting risk through improved IYCF practices in low- and middle-income countries. The study applied a systematic narrative synthesis approach to integrate evidence from various study designs (including RCTs and Quasi-Experiments), allowing for a more holistic evaluation of the effectiveness and context of intervention implementation. The analysis focused on key IYCF indicators—Early Initiation of Breastfeeding (EIBF), Exclusive Breastfeeding (EBF), and Dietary Diversity (MDD)—as vital intermediate outcomes in the stunting prevention pathway.

METHODS

Study Design and Protocol

This study employed a Systematic Review design, developed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines.¹⁵ This approach, which represents the primary method used in literature reviews,¹⁶⁻¹⁹ was applied throughout the study. All stages of the review process were conducted rigorously in compliance with the PRISMA checklist to minimize bias and ensure transparency in reporting.

Data Search Strategy

A comprehensive literature search was conducted in three highly reputable databases: PubMed, Scopus, and ScienceDirect. These three databases were selected based on their extensive coverage of

medical and public health literature that has undergone a rigorous peer-review process, ensuring the quality of the included evidence. The search was limited to English-language articles published in the last 10 years (2014-2024) to ensure the data's relevance to current global health conditions. Keywords were structured based on the PICO (Population, Intervention, Comparison, Outcome) framework (Methley et al., 2014), using Boolean operators (AND/OR), including keyword variations presented in supplementary table S1.

After searching the databases, all retrieved articles were exported to Rayyan for de-duplicated review, screening, and selection. Two independent reviewers screened the articles identified in the search based on the criteria listed in Table 1. Potentially relevant articles selected in the first screening stage were retrieved in full. In the first-level screening, search results were reviewed based on their titles. In the second-level screening, abstracts and sufficient information were reviewed. Articles meeting the inclusion criteria were imported into Zotero for further full-text selection. Studies not meeting the eligibility criteria were excluded, and the reasons for exclusion were recorded and reported in the systematic review. If there were any disagreements, the reviewers discussed the issue to reach a consensus. If necessary, a third reviewer was consulted. This procedure minimized bias when deciding whether to include or exclude studies.

Study Quality Assessment

The methodological quality of each included study was independently assessed by two reviewers. Given the heterogeneity of study designs, risk-of-bias assessment tools were tailored to the specific design of each study to ensure a valid evaluation. For randomized controlled trials (RCTs), methodological quality was assessed using the Cochrane Risk of Bias tool version 2.0 (RoB 2), which evaluates bias arising from the randomization process, deviations from intended interventions, missing outcome data, outcome measurement, and selective reporting of results.²¹ For quasi-experimental (non-randomized) studies, quality assessment was conducted using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Quasi-Experimental Studies.²² Based on the proportion of “Yes” responses across assessment items, studies were classified as having low, moderate, or high risk of bias.

Table 1: The inclusion and exclusion criteria

Criteria	Inclusion	Exclusion
Population	Pregnant women or mothers with children aged 0-23 months residing in Low- and Middle-Income Countries (LMICs).	Mothers with specific medical conditions (e.g., HIV/AIDS, Diabetes) or children with congenital anomalies affecting feeding abilities.
Intervention	Health education, nutrition counseling, health promotion, or behavior change communication (BCC) focusing on Infant and Young Child Feeding (IYCF) practices.	Interventions providing only food supplementation or micronutrients without an educational component; purely clinical or medical interventions.
Comparison	Standard of care, no intervention, or placebo.	Educational interventions comparing identical methods (e.g., varying only in duration) without a true control group.
Outcome	Reported at least one indicator of IYCF practices (e.g., Early Initiation of Breastfeeding, Exclusive Breastfeeding, Minimum Dietary Diversity) as a proximal determinant for stunting prevention.	Studies assessing only maternal knowledge or attitude scores without measuring actual behavioral changes (practice) or child growth outcomes.
Study Design	Randomized Controlled Trials (RCTs), Cluster-RCTs, and Quasi-Experimental or Observational studies with a control group.	Observational studies (Cross-sectional, Case-control, Cohort) without intervention, review articles, editorials, or conference proceedings.
Other	Full-text articles available in English, published between 2014 and 2024.	Full-text unavailable, non-English language articles.

Table S1. Article Search Results in Various Databases

Database	Query	Number of Articles
PubMed	"Health Education"[MeSH Terms] AND "Behavior"[MeSH Terms] AND ("Infant"[All Fields] AND "Young"[All Fields] AND "Child"[All Fields] AND "Feeding"[All Fields]) AND ("Infant"[MeSH Terms] OR "Infant"[All Fields] OR "infants"[All Fields] OR "infant s"[All Fields] OR "Under 2 Years"[All Fields])	424
ScienceDirect	"Health Education" AND Behavior AND "Infant and Young Child Feeding" AND Prevention AND (Stunting OR Growth Disorder) AND Infant OR "Under 2 years"	745
Scopus	(TITLE-ABS-KEY (health AND education) AND TITLE-ABS-KEY (behavior) AND TITLE-ABS-KEY (infant AND young AND child AND feeding) AND TITLE-ABS-KEY (stunting OR "Growth Disorder") AND TITLE-ABS-KEY (infant OR "Under 2 Years"))	44
TOTAL		1213

Data Extraction and Synthesis

Data were extracted using a standardized form in accordance with the Cochrane Handbook guidelines, capturing information on authors, year of publication, country, study design, sample characteristics, intervention details (duration, delivery media, and educators), and primary outcomes.²³ Data analysis was conducted using a narrative synthesis approach, following the framework developed by Popay et

al.²⁴ and the reporting guidelines for Synthesis Without Meta-analysis (SWiM).²⁵ The findings are presented in the form of a characteristics table and descriptive narratives, organized according to IYCF outcome themes.

RESULTS

A total of 1,213 articles were retrieved from the database and PubMed, ScienceDirect, and Scopus

searches. After removing 20 duplicate articles, 1,193 articles were obtained. Furthermore, the

appropriate title and abstract of the article were screened again, and 1,002 articles were removed.

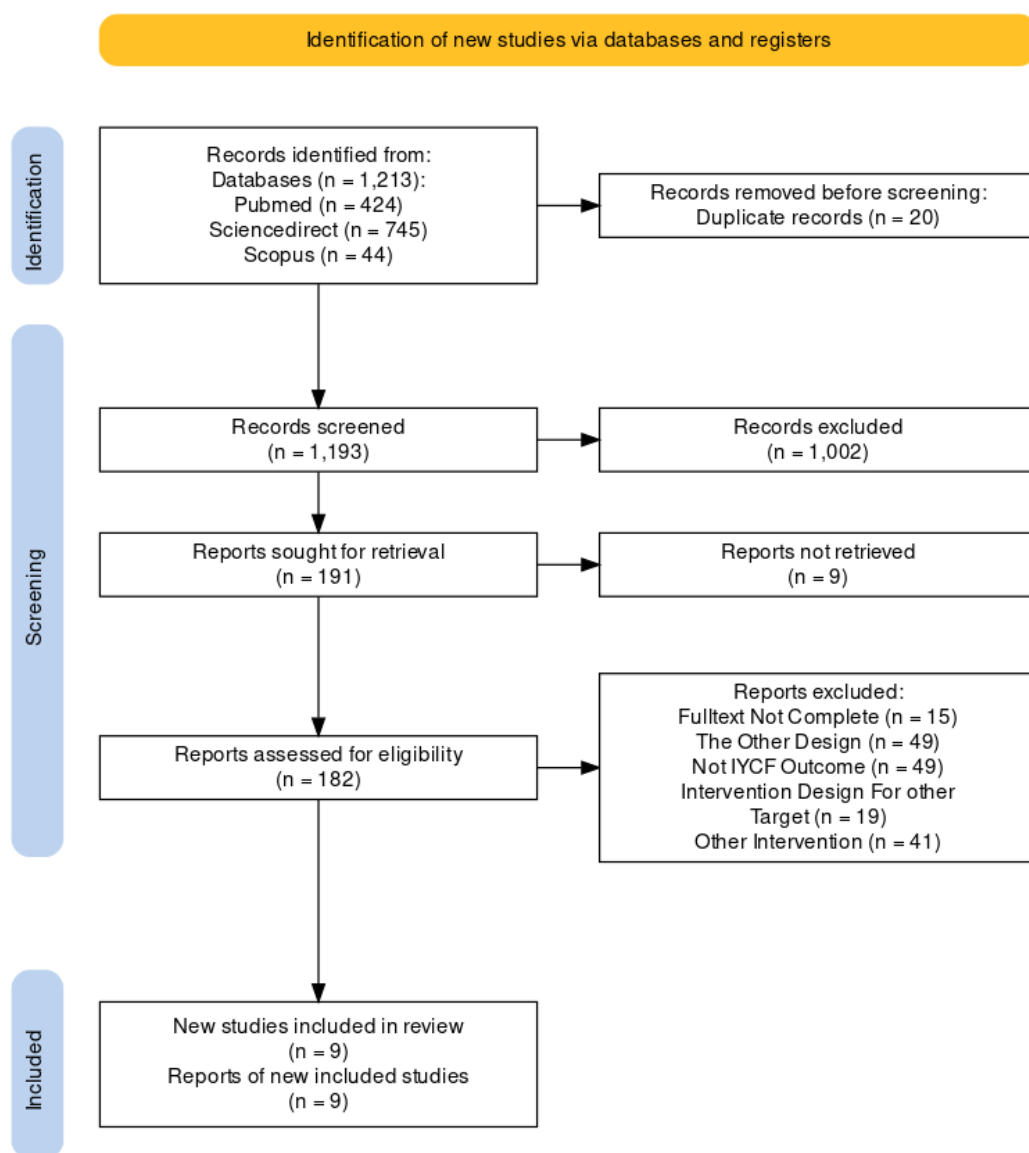


Figure 1. PRISMA flow diagram showing the study identification and selection process.

Furthermore, the eligibility of the articles was checked, and 15 articles were removed because the articles were incomplete, 49 articles because of other designs, 49 articles because of outcomes other than PMBA behavior, 19 articles because of interventions carried out on targets other than mothers and babies, and 41 articles because of interventions that were not health education. Based

on this process, 9 articles were obtained, which were used in the systematic review.

A total of nine studies met the inclusion criteria and were included in the analysis (Table 2). The studies were conducted in low- and middle-income countries (LMICs), with the majority undertaken in Ethiopia (n = 4),²⁶⁻²⁹ followed by Bangladesh (n = 2),^{30,31} Burkina Faso (n = 1),³² Uganda (n = 1),³³ and China (n = 1).³⁴

Table 2. Study Characteristics and Summary of Findings

Author (Year)	Country	Study Design	Population & Sample	Intervention			Comparator	Key Outcomes
				Education	Method	Duration		
Abdulahi et al. 2021 ²⁶	Ethiopia	Cluster RCT	Mothers with infants 0-6 months.n = 448 (I: 224, C: 224)	Breastfeeding Education & Support	Monthly home visits by Health Extension Workers	Birth to 6 months.	Standard health care	↑ EBF ↑ Growth (Higher mean LAZ score)
Admasu et al. 2022 ²⁷	Ethiopia	Cluster RCT	Pregnant women (3rd trimester).n = 310 (I: 155, C: 155)	Theory-based nutrition education (HBM)	Lectures & group discussions during Antenatal Care (ANC)	3rd trimester of pregnancy to 6 months postpartum.	Routine Antenatal Care without additional education.	↑ Early Initiation of Breastfeeding (EIBF) ↑ Exclusive Breastfeeding (EBF)
Ara et al. 2018 ³⁰	Bangladesh	Cluster RCT	Pregnant women (3rd trimester).n = 350 (I: 175, C: 175)	Peer Counseling	Home visits by trained community volunteers	2x during pregnancy, 5x postpartum (until 5 months).	No specific intervention.	↑ EIBF (88.6% vs 64.6%) ↑ EBF (78.3% vs 17.3%)
Ickes et al. 2017 ³³	Uganda	Post-program Comparison	Mothers with children 6-59 months.n = 363	Maternal Nutrition Education + Supplementation	Group education on Complementary Feeding + LNS package	Post-program assessment (Retrospective).	Non-participants within same community.	↑ Dietary Diversity ↑ Nutrition Knowledge
Kang et al. 2017 ²⁸	Ethiopia	Cluster RCT	Mothers with children 6-24 months.n = 1,934 (I: 969, C: 965)	Community-based Nutrition Promotion (CPNP)	Group sessions + Cooking demonstrations + Home visits	Monthly (during intervention period).	Government nutrition program (standard).	↑ Dietary Diversity (MDD) ↑ Meal Frequency (MMF)
Kim et al. 2016 ²⁹	Ethiopia	Repeated Cross-sectional	Mothers with children <2 years.n = 5,000+ (across surveys)	Large-scale SBCC (Social Behavior Change)	Mass Media (Radio) + Community Events	2009-2012 (Exposure assessment).	Low exposure/no exposure group.	↑ EBF ↑ Complementary Feeding Practices
Kim et al. 2018 ³¹	Bangladesh	Cluster RCT (Follow-up)	Mothers with children <2	Intensive Counseling + Mass Media	Frontline worker + counseling + Community	Long-term (2-year follow-up).	Non-intensive counseling (standard).	↑ IYCF Knowledge

			years.n = 2,001		mobilization + Media			↑ Sustained Complementary Feeding Practices
Liang et al. 2018 ³⁴	China	Quasi-Experimental	Mothers with children <3 years.n = 3,425 (I: 9 areas, C: 25 areas)	Community Health Education	Distribution of printed materials (leaflets) & village doctor training	2001-2005.	Basic health services without special materials.	↓ Stunting Prevalence (Improved HAZ) ↓ Underweight
Nikièma et al. 2017 ³²	Burkina Faso	Cluster RCT	Mothers with children 0-18 months.n = 2,110 (I: 1055, C: 1055)	Personalized Nutrition Counseling	Individual counseling at health facilities during sick/immunization visits	Age months. 0-18	Standard facility-based services.	↑ EBF- No effect on Stunting (LAZ)

RCT, Randomized Controlled Trial; I, Intervention Group; C, Control Group; ANC, Antenatal Care; EIBF, Early Initiation of Breastfeeding; EBF, Exclusive Breastfeeding; IYCF, Infant and Young Child Feeding; MDD, Minimum Dietary Diversity; MMF, Minimum Meal Frequency; LAZ, Length-for-Age Z-score; HAZ, Height-for-Age Z-score; LNS, Lipid-based Nutrient Supplements; BCC, Behavior Change Communication; CPNP, Community-based Participatory Nutrition Promotion

Based on study design, the included articles were categorized into two main groups. Six studies employed cluster randomized controlled trial (RCT) designs, which provide the highest level of evidence among the reviewed studies.^{26-28, 30-32} The remaining three studies used non-randomized designs, including a large-scale repeated cross-sectional study,²⁹ a quasi-experimental study with a control group,³⁴ and a post-program comparison study.³³ The interventions varied across studies, ranging from facility-based counseling integrated into antenatal care services^{27, 32} to community-based approaches involving peer counselors or community health workers.^{26, 28, 30} Two studies specifically evaluated

large-scale Social and Behavior Change Communication (SBCC) programs that combined interpersonal counseling with mass media campaigns.^{29, 31} The target populations included pregnant women (third trimester) and mothers with children under two years of age. In randomized controlled trials (RCTs), comparator groups typically received standard care or no specific intervention, whereas in non-RCT studies, comparisons were made with groups characterized by low exposure or non-participation within the same communities. A detailed summary of study characteristics is presented in Table 2.

Tabel 3. Quality Assessment for Quasi-Experimental Studies using JBI Checklist

Study ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8/ Q8	Overall Assessment
Kim et al. (2016)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A	High Quality
Liang et al. (2018)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	High Quality
Ickes et al. (2017)	Unclear	No	Yes	Unclear	Yes	Yes	Yes	N/A	Moderate Quality

Q1, Cause & Effect?; Q2, Participants Similar?; Q3, Exposure Measured?; Q4, Confounding Handled?; Q5, Outcomes Measured?; Q6, Reliable Outcome?; Q7, Appropriate Analysis?; Q8/9, Adequate Follow-up?

The risk of bias assessment of six randomized controlled trials (RCTs) using the RoB 2 tool indicated that four studies were classified as having some concerns, primarily due to the absence of participant blinding inherent in behavioral interventions and the reliance on self-reported outcome measures.^{26, 27, 29, 30} Two studies were judged to be at high risk of bias owing to substantial dropout rates (>30%), which may compromise the validity of long-term outcomes.^{28, 32} These

assessments are presented in Figure 1 and Supplementary Figure S1.

For non-randomized studies evaluated using the Joanna Briggs Institute (JBI) critical appraisal tool, two large-scale evaluations demonstrated high methodological quality, supported by robust statistical adjustment for confounding variables.^{29, 34} In contrast, one post-program comparison study was rated as having moderate methodological quality.³³ The detailed assessments are summarized in Table 3.

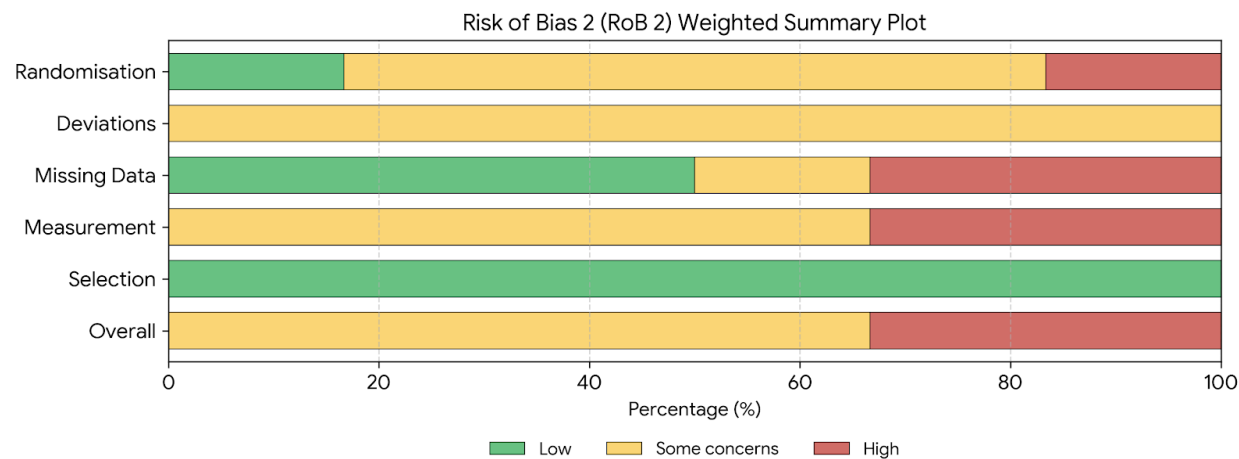


Figure 1. Risk of Bias 2 (RoB 2) weighted summary plot

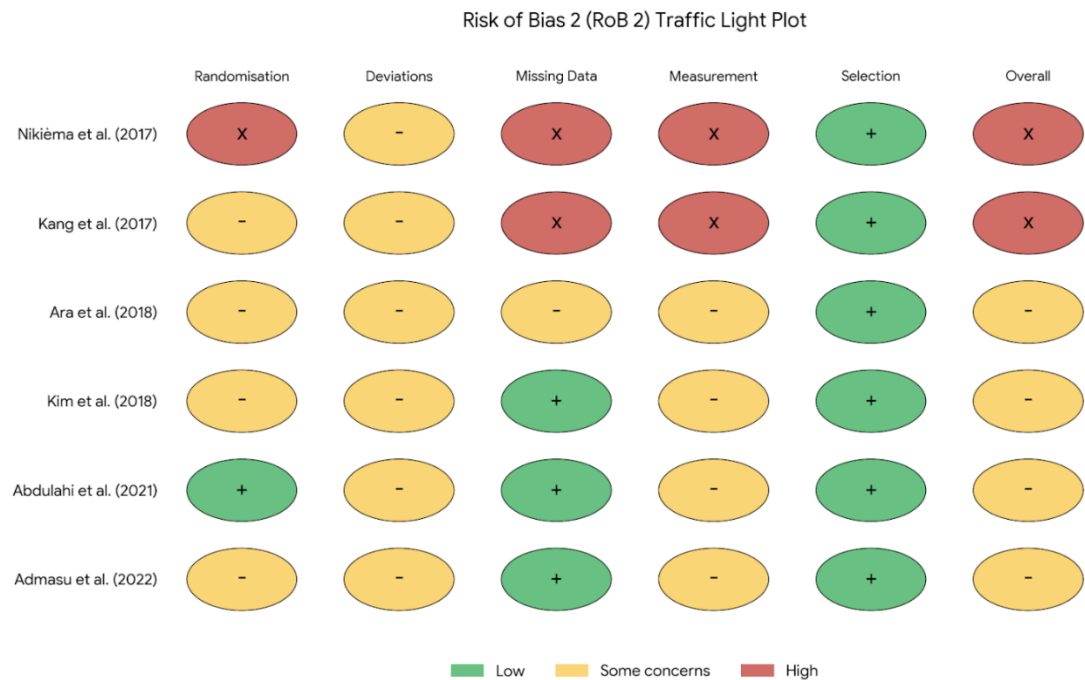


Figure S1. Risk of Bias 2 (RoB 2) traffic light plot

DISCUSSION

This systematic review confirms that health education interventions are an effective strategy for improving infant and young child feeding (IYCF) practices, particularly early initiation of breastfeeding (EIBF), exclusive breastfeeding, and dietary diversity. However, their effectiveness in improving linear growth outcomes (height-for-age z-score [HAZ] or stunting) shows mixed results. This suggests that although educational interventions successfully modify maternal feeding behaviors, the translation of behavioral change into improved child physical growth is influenced by other external factors. The success of educational interventions in improving exclusive breastfeeding practices can be explained by increased maternal self-efficacy. As discussed by Admasu et al.,²⁷ theory-based interventions (such as the Health Belief Model or the Theory of Planned Behavior) are effective because they modify mothers' perceptions of breastfeeding-related barriers. Improved knowledge enhances mothers' ability to resist social pressure to introduce pre-lacteal feeds or early complementary feeding.^{35,36} In addition, the mode of delivery plays a decisive role. Studies by Ara et al.³⁰ and Abdulahi et al.²⁶ demonstrated that peer counseling was more effective than standard counseling approaches. Peer counselors drawn from the same community are better able to establish trust and provide sustained emotional support, which is crucial for the successful practice of exclusive breastfeeding.^{37,38}

Findings from Kim et al.²⁹ and Kim et al.³¹ further highlight the importance of intervention intensity and coverage. Educational interventions that integrate interpersonal communication (IPC) with mass media campaigns, commonly referred to as Social and Behavior Change Communication (SBCC), showed greater impact by reaching wider audiences and fostering new social norms. Repeated exposure to messages across multiple channels (e.g., radio, community health posts, and home visits) has been shown to significantly strengthen maternal knowledge retention.³⁹ One of the key findings of this review is that improvements in feeding behaviors are not always accompanied by a significant reduction in stunting. The discussion presented in the study by Nikiéma et al.³² provides a critical explanation, indicating that education-only interventions are often insufficient in populations experiencing acute food insecurity.⁴⁰ Without access to nutritious foods (e.g., supplementation) or improvements in sanitation to prevent recurrent infections, children's growth potential remains constrained despite adequate maternal knowledge.⁴¹ In contrast, studies by Liang et al.³⁴ and Ickes et al.³³ reported improvements in nutritional status when educational interventions

were combined with strengthened health systems or the provision of lipid-based nutrient supplements (LNS). The integration of nutrition education with the delivery of high-quality nutritional products was substantially more effective in addressing the "nutrient gap" during the complementary feeding period than education alone.⁴¹

This review has several limitations. First, the inclusion of studies with non-randomized (quasi-experimental) designs introduces the potential for selection bias. Second, two randomized controlled trials (RCTs)^{28,32} reported high drop-out rates (>30%), which may compromise the validity of long-term outcomes. Third, variability in intervention duration across studies makes it difficult to determine the optimal "dose" of educational interventions for stunting prevention. Based on the synthesis of the available evidence, stunting prevention policies should not be limited to information, education, and communication (IEC) activities alone. Sustained impact requires integrated service delivery. Educational programs should be combined with nutrition-sensitive interventions, such as food assistance and improved sanitation, to address structural barriers that prevent mothers from translating knowledge into practice.

CONCLUSION

This study concludes that health education significantly improves infant and young child feeding practices, particularly exclusive breastfeeding; however, its effectiveness in reducing stunting as a standalone intervention remains limited and variable. Improvements in maternal behavior do not necessarily translate into linear child growth when underlying structural barriers are not addressed. Therefore, future stunting prevention strategies should integrate educational approaches with nutrition-sensitive interventions, such as improved sanitation and food security. Further research should employ rigorous longitudinal designs with extended follow-up periods to accurately assess impacts on physical growth outcomes.

REFERENCES

1. Tariku B, Whiting SJ, Muluaalem D, Singh P. Application of the Health Belief Model to Teach Complementary Feeding Messages in Ethiopia. *Ecol Food Nutr.* 2015;54(5).
2. Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M, et al. Maternal and child undernutrition: global and regional exposures and health consequences. Vol. 371, *The Lancet.* 2008.

3. Mahumud RA, Uprety S, Wali N, Renzaho AMN, Chitekwe S. The effectiveness of interventions on nutrition social behaviour change communication in improving child nutritional status within the first 1000 days: Evidence from a systematic review and meta-analysis. Vol. 18, *Maternal and Child Nutrition*. 2022.
4. Mistry SK, Hossain MB, Arora A. Maternal nutrition counselling is associated with reduced stunting prevalence and improved feeding practices in early childhood: A post-program comparison study. *Nutr J*. 2019;18(1).
5. Victora CG, De Onis M, Hallal PC, Blössner M, Shrimpton R. Worldwide timing of growth faltering: Revisiting implications for interventions. *Pediatrics*. 2010;125(3).
6. Abiyu C, Belachew T. Effect of complementary feeding behavior change communication delivered through community-level actors on dietary adequacy of infants in rural communities of West Gojjam Zone, Northwest Ethiopia: A cluster-randomized controlled trial. *PLoS One*. 2020;15(9 September).
7. Haque NB, Miharshahi S, Haider R. Peer counselling as an approach to improve complementary feeding practices: a narrative review. Vol. 42, *Journal of Health, Population and Nutrition*. 2023.
8. Phu hine WW, Wittayasooorn J, Kongsaktrakul C. Influence of child feeding practices and selected basic conditioning factors on stunting in children between 6 and 24 months of age in Myanmar. *Makara Journal of Health Research [Internet]*. 2019 Aug 30;23(2). Available from: <https://scholarhub.ui.ac.id/mjhr/vol23/iss2/6/>
9. Ekaningrum AY, Sulistiyorini D. Systematic Review: Relationship between Infant and Young Child Feeding Practices with Stunting in Indonesia. In 2022.
10. Elni E, Julianti E. The Correlation between Feeding Habit Factor and The Incidence of Stunting in Children Under Five Years. *Jurnal Keperawatan Padjadjaran*. 2020;8(3).
11. Sarkar P, Rifat MA, Bakshi P, Talukdar IH, Pechtl SML, Lindström Battle T, et al. How is parental education associated with infant and young child feeding in Bangladesh? a systematic literature review. *BMC Public Health*. 2023;23(1).
12. EPHI and ICF. Ethiopia Mini Demographic and Health Survey 2019: key Indicators. Rockville, Maryland, USA: EPHI and ICF. 2019.
13. Rakotomanana H, Gates GE, Hildebrand D, Stoecker BJ. Situation and determinants of the infant and young child feeding (IYCF) indicators in Madagascar: Analysis of the 2009 Demographic and Health Survey. Vol. 17, *BMC Public Health*. 2017.
14. Scott M, Malde B, King C, Phiri T, Chapota H, Kainja E, et al. Family networks and infant health promotion: A mixed-methods evaluation from a cluster randomised controlled trial in rural Malawi. *BMJ Open*. 2018;8(6).
15. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. Updating guidance for reporting systematic reviews: development of the PRISMA 2020 statement. *J Clin Epidemiol*. 2021;134.
16. Moher D, Shamseer L, Clarke M, Ghera D, Liberati A, Petticrew M, et al. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Revista Espanola de Nutricion Humana y Dietetica*. 2016;20(2).
17. Hutton B, Catalá-López F, Moher D. The PRISMA statement extension for systematic reviews incorporating network meta-analysis: PRISMA-NMA. *Medicina Clínica (English Edition)*. 2016;147(6).
18. Shamseer L, Moher D, Clarke M, Ghera D, Liberati A, Petticrew M, et al. Preferred reporting items for systematic review and meta-analysis protocols (prisma-p) 2015: Elaboration and explanation. Vol. 349, *BMJ (Online)*. 2015.
19. Stewart LA, Clarke M, Rovers M, Riley RD, Simmonds M, Stewart G, et al. Preferred reporting items for a systematic review and meta-analysis of individual participant data: The PRISMA-IPD statement. Vol. 313, *JAMA - Journal of the American Medical Association*. 2015.
20. Methley AM, Campbell S, Chew-Graham C, McNally R, Cheraghi-Sohi S. PICO, PICOS and

- SPIDER: A comparison study of specificity and sensitivity in three search tools for qualitative systematic reviews. Vol. 14, BMC Health Services Research. 2014.
21. Sterne JAC, Savović J, Page MJ, Elbers RG, Blencowe NS, Boutron I, et al. RoB 2: A revised tool for assessing risk of bias in randomised trials. *The BMJ*. 2019;366.
22. Tufanaru C, Aromataris E, Campbell J, Hopp L. Chapter 3: Systematic reviews of effectiveness. In: JBI Manual for Evidence Synthesis [Internet]. JBI; 2020 [cited 2025 Nov 30]. Available from: https://www.researchgate.net/publication/342598402_Chapter_3_Systematic_Review_s_of_Effectiveness
23. Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, et al. Cochrane handbook for systematic reviews of interventions. *Cochrane Handbook for Systematic Reviews of Interventions* [Internet]. 2019 Jan 1 [cited 2025 Dec 10];1-694. Available from: <https://onlinelibrary.wiley.com/doi/book/10.1002/9781119536604>
24. Popay J, Roberts H, Sowden A, Petticrew M, Arai L, Rodgers M, et al. Guidance on the Conduct of Narrative Synthesis in Systematic Reviews A Product from the ESRC Methods Programme. 2006;
25. Campbell M, McKenzie JE, Sowden A, Katikireddi SV, Brennan SE, Ellis S, et al. Synthesis without meta-analysis (SWiM) in systematic reviews: Reporting guideline. *The BMJ*. 2020;368.
26. Abdulahi M, Fretheim A, Argaw A, Magnus JH. Breastfeeding education and support to improve early initiation and exclusive breastfeeding practices and infant growth: A cluster randomized controlled trial from a rural ethiopian setting. *Nutrients*. 2021;13(4).
27. Admasu J, Egata G, Bassore DG, Feleke FW. Effect of maternal nutrition education on early initiation and exclusive breast-feeding practices in south Ethiopia: a cluster randomised control trial. *J Nutr Sci*. 2022;11.
28. Kang Y, Suh YK, Debele L, Juon HS, Christian P. Effects of a community-based nutrition promotion programme on child feeding and hygiene practices among caregivers in rural Eastern Ethiopia. *Public Health Nutr*. 2017;20(8).
29. Kim SS, Rawat R, Mwangi EM, Tesfaye R, Abebe Y, Baker J, et al. Exposure to large-scale social and behavior change communication interventions is associated with improvements in infant and young child feeding practices in Ethiopia. *PLoS One*. 2016;11(10).
30. Ara G, Khanam M, Papri N, Nahar B, Haque MA, Kabir I, et al. Peer counselling improves breastfeeding practices: A cluster randomized controlled trial in urban Bangladesh. *Matern Child Nutr*. 2018;14(3).
31. Kim SS, Nguyen PH, Tran LM, Sanghvi T, Mahmud Z, Haque MR, et al. Large-Scale Social and Behavior Change Communication Interventions Have Sustained Impacts on Infant and Young Child Feeding Knowledge and Practices: Results of a 2-Year Follow-Up Study in Bangladesh. *Journal of Nutrition*. 2018;148(10).
32. Nikiéma L, Huybregts L, Martin-Prevel Y, Donnen P, Lanou H, Grosemans J, et al. Effectiveness of facility-based personalized maternal nutrition counseling in improving child growth and morbidity up to 18 months: A cluster-randomized controlled trial in rural Burkina Faso. *PLoS One*. 2017;12(5).
33. Ickes SB, Baguma C, Brahe CA, Myhre JA, Adair LS, Bentley ME, et al. Maternal participation in a nutrition education program in Uganda is associated with improved infant and young child feeding practices and feeding knowledge: A post-program comparison study. *BMC Nutr*. 2017;3(1).
34. Liang W, Xing Y, Pang M, Wang D, Yan H. Community health education improves child health care in Rural Western China. *BMC Pediatr*. 2018;18(1).
35. Rosenstock IM. Historical Origins of the Health Belief Model. *Health Education & Behavior*. 1974;2(4).
36. Ajzen I. The theory of planned behavior. *Organ Behav Hum Decis Process*. 1991;50(2).
37. Haider R, Ashworth A, Kabir I, Huttly SRA. Effect of community-based peer counsellors

- on exclusive breastfeeding practices in Dhaka, Bangladesh: A randomised controlled trial. *Lancet*. 2000;356(9242).
38. Sudfeld CR, Fawzi WW, Lahariya C. Peer Support and Exclusive Breastfeeding Duration in Low and Middle-Income Countries: A Systematic Review and Meta-Analysis. Vol. 7, *PLoS ONE*. 2012.
39. Menon P, Nguyen PH, Saha KK, Khaled A, Sanghvi T, Baker J, et al. Combining intensive counseling by frontline workers with a nationwide mass media campaign has large differential impacts on complementary feeding practices but not on child growth: Results of a cluster-randomized program evaluation in Bangladesh1-3. *Journal of Nutrition*. 2016;146(10).
40. Bhutta ZA, Das JK, Rizvi A, Gaffey MF, Walker N, Horton S, et al. Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? Vol. 382, *The Lancet*. 2013.
41. Dewey KG. Reducing stunting by improving maternal, infant and young child nutrition in regions such as South Asia: Evidence, challenges and opportunities. Vol. 12, *Maternal and Child Nutrition*. 2016.

APPENDIX

Indicator Descriptions (General JBI Items):

Q1: Clarity of the cause-effect relationship (Cause-effect clearly established?)

Q2: Participant comparability (Were participants similar?) / Appropriateness of the control group

Q3: Validity of exposure measurement (Was the exposure measured validly?) / Consistency of treatment apart from the intervention

Q4: Identification of confounding factors (Were confounders identified?) / Completeness of follow-up

Q5: Strategies to address confounding (Were strategies implemented to deal with confounding?) / Use of multiple measurements

Q6: Validity of outcome measurement (Were outcomes measured in a valid and reliable manner?)

Q7: Appropriateness of statistical analysis (Was the statistical analysis appropriate?)

Q8-Q9: Additional design-specific indicators (e.g., reliability, adequacy of follow-up, and related methodological aspects)