

Responsive Parenting and Nutritional Status Among Children with a History of Stunting : A Scoping Review

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ABSTRACT

Introduction: Stunting remains a significant global public health challenge, affecting over 148 million children worldwide and resulting in long-term impairments in cognitive development, immunity, and future productivity. Although nutrition-specific interventions have been extensively implemented, the influence of parenting behaviors on recovery among children with a history of stunting has not been comprehensively synthesized. This scoping review examines how responsive parenting, grounded in evidence-based practice, affects nutritional outcomes and developmental recovery in children with a history of stunting. **Methods:** The review adhered to PRISMA-ScR guidelines and employed the Population–Concept–Context (PCC) framework. A systematic search was performed across PubMed, Scopus, ScienceDirect, and Google Scholar for studies published between 2020 and 2025. Eligible articles, written in English or Indonesian, investigated responsive parenting, caregiving behaviors, or evidence-based parenting interventions related to nutritional outcomes. Twenty-seven studies met the inclusion criteria and were analyzed using narrative and thematic synthesis. **Result:** The results demonstrate that responsive parenting, characterized by sensitive, timely, and developmentally appropriate caregiving, is consistently associated with improved feeding practices, enhanced dietary adequacy, and superior indicators of child growth. Evidence-based parenting interventions that incorporate caregiver coaching, home-based monitoring, and parental empowerment are more effective than standard counseling approaches. **Conclusion** Furthermore, responsive caregiving contributed to better appetite regulation, reduced feeding difficulties, and increased psychosocial stimulation, collectively supporting catch-up growth in children affected by stunting. These findings underscore the need to integrate responsive parenting strategies into nutrition and stunting-reduction programs to enhance children's nutritional recovery and developmental outcomes

INTRODUCTION

Stunting remains a persistent and complex public health challenge affecting global health systems due to its immediate effects on child growth and its long-term, often irreversible impacts on cognitive development, immune function, psychosocial well-being, and future socioeconomic productivity (1,2). Despite decades of national and international efforts, millions of children worldwide continue to experience impaired linear growth caused by chronic undernutrition, suboptimal caregiving practices, recurrent infections, and broader structural inequalities. Global health agencies consistently report that stunting contributes to significant disparities in school readiness, learning capacity, and economic participation across regions, especially in low- and middle-income countries (2–4). The continued burden of stunting, despite improvements in nutrition-specific interventions, indicates underlying gaps in program design and the behavioral aspects of childcare.

An extensive body of evidence identifies multifactorial determinants of stunting, including socioeconomic context, maternal education, feeding practices, food security, environmental hygiene, and access to health services (5–7). Emerging insights from developmental science and global child nutrition research increasingly emphasize the importance of caregiving behavior, particularly responsive parenting (8–10). Responsive parenting is defined as the caregiver's ability to recognize, interpret, and respond sensitively and appropriately to a child's cues (11–15). This approach fosters secure attachment, supports appetite regulation, reduces mealtime conflicts, and encourages healthy feeding interactions. These mechanisms are closely linked

to nutritional rehabilitation, especially for children with a history of stunting who often require targeted support to recover physical growth and developmental functioning (2,16).

Despite its significance, responsive parenting has not been adequately integrated into mainstream nutrition interventions. Existing programs frequently prioritize biomedical and food-based strategies, leaving behavioral and relational aspects of childcare underexplored (17). This review addresses the gap arising from the limited incorporation of evidence-based parenting models into child nutrition programs, despite strong theoretical foundations and empirical evidence supporting their potential to improve child health outcomes (18,19). Although responsive parenting or caregiving has been extensively studied in psychology and early childhood development, its direct role in stunting recovery, particularly within evidence-based practice frameworks, remains fragmented and inconsistently documented in the literature (11,15). Understanding this relationship is essential for designing interventions that account for child growth as both a biological and a relational process.

The global health policy landscape further underscores the need to integrate responsive parenting (11,15). While traditional stunting interventions have primarily targeted nutrition-specific determinants, international agendas such as the Sustainable Development Goals (SDG 2: Zero Hunger and SDG 3: Good Health and Well-being) emphasize holistic, multisectoral, and family-centered strategies to enhance child development outcomes (20). This shift reflects increasing recognition that nurturing care—including responsive parenting, emotional security, and social stimulation—is central to achieving optimal growth trajectories. Integrating responsive caregiving into stunting recovery initiatives aligns with global commitments to strengthen parental capacity, reduce developmental inequities, and protect long-term human capital (21).

This scoping review aims to systematically map the available evidence on how responsive parenting patterns guided by evidence-based practice principles influence the nutritional status and growth recovery of children with a history of stunting. The review contributes to international health discourse by synthesizing scientific findings across disciplines, elucidating mechanisms through which responsive caregiving supports nutritional rehabilitation, and identifying research gaps that must be addressed to enhance future interventions.

METHODS

Study Design

This scoping review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guidelines based Population–Concept–Context (PCC) framework (22). The design was chosen to systematically map the scope and characteristics of existing evidence on responsive parenting and its potential role in supporting nutritional and developmental recovery in children affected by stunting. The scoping review design was chosen over a conventional systematic review due to the conceptual diversity and methodological heterogeneity of the literature on responsive parenting and stunting recovery. Prior studies have explored related constructs across multiple disciplines, including nutrition, early childhood development, caregiving behavior, and parenting interventions, employing varied outcome measures and study designs. This diversity renders a scoping review more suitable for mapping the range, characteristics, and conceptual frameworks of the evidence rather than estimating pooled effect sizes or addressing narrowly defined intervention questions. Consequently, this approach facilitates the identification of key themes, knowledge gaps, and patterns that may guide future systematic reviews and intervention research.

Population, Concept, and Context (PCC)

The population of interest comprised children with a history of stunting, defined as impaired linear growth indicated by a height-for-age z-score (HAZ) below -2 standard deviations during infancy or early childhood. The operationalization of “history of stunting” varied across the literature. Some studies explicitly involved children currently stunted or previously identified as stunted based on anthropometric measurements. Other studies focused on children living in populations with a high prevalence of stunting or nutritional vulnerability, but did not always confirm individual stunting status (23). To address this variation, studies were classified according to whether they examined children with confirmed stunting or broader nutrition-related populations in which stunting risk was relevant. Additionally, caregivers were included when parenting behaviors constituted the primary exposure or intervention component.

This review examines the concept of responsive parenting grounded in evidence-based practice. Responsive parenting involves caregiving behaviors characterized by sensitivity, promptness, and appropriateness in responding to children's cues, such as hunger signals, emotional expressions, and developmental needs. In nutrition-related contexts, responsive parenting specifically includes responsive feeding practices, where caregivers provide developmentally appropriate feeding while recognizing and responding to children's appetite and satiety cues. Beyond everyday caregiving behaviors, the concept also encompasses structured or theory-informed parenting interventions. These interventions may include caregiver education, coaching programs, home-based parenting support, or family-centered behavioral interventions to improve feeding practices, nutritional status, and developmental outcomes among young children affected by or at risk of stunting.

This review examined healthcare, community, and household environments where parenting and nutrition-related interventions are implemented. It considered studies from diverse geographical and socioeconomic contexts, including low, middle, and high-income countries. This broad scope reflects the global burden of stunting and the variety of settings in which responsive parenting interventions are applied. Consequently, the review incorporated evidence from primary healthcare services, community nutrition programs, early childhood development initiatives, and household caregiving practices, without limiting consideration to cultural or institutional contexts.

Eligibility Criteria

Clear eligibility criteria were established to include studies examining the relationship between responsive parenting and outcomes related to stunting or nutritional recovery. Included studies focused on children aged 0 to 5 years who were identified as experiencing stunting or who belonged to populations with documented nutritional vulnerability linked to stunting risk. Eligible studies investigated responsive parenting, responsive feeding practices, caregiving behaviors, or structured parenting interventions affecting child nutrition, feeding behavior, or developmental outcomes. Studies were required to report outcomes concerning nutritional status, feeding behavior, dietary intake, growth indicators, including catch-up growth, or developmental outcomes linked to nutrition and caregiving practices. The review included empirical studies using quantitative, qualitative, or mixed-methods designs, as well as evidence syntheses such as systematic reviews. To capture recent literature developments, only studies published between 2020 and 2025 were considered. Publications in English or Indonesian were eligible. Studies involving non-human subjects or focusing primarily on topics unrelated to responsive parenting, feeding behavior, or nutrition-related outcomes were excluded. Articles addressing general parenting without links to child nutrition or stunting indicators were also excluded to maintain conceptual precision. Additionally, publications lacking empirical data were excluded from the review.

Search Strategy

A comprehensive literature search was performed across four major electronic databases: PubMed, Scopus, ScienceDirect, and Google Scholar. The search strategy incorporated both controlled vocabulary and free-text keywords to capture variations in terminology across disciplines. Key search terms comprised combinations of "responsive parenting," "responsive feeding," "evidence-based parenting," "stunting," "child nutrition," "feeding practices," "caregiving behavior," and "catch-up growth." Boolean operators (AND, OR) were employed to optimize the search strategy for sensitivity and specificity. The search syntax was tailored to each database's indexing structure and functionality. Furthermore, reference lists of eligible articles were manually screened to identify relevant studies not captured in the search. To ensure transparency and reproducibility, the detailed search syntax for each database was documented. For example, the PubMed search strategy combined Medical Subject Headings (MeSH) and free-text keywords as follows: "Responsive Feeding"[Mesh] OR "Parenting"[Mesh] OR "Caregivers"[Mesh] OR "responsive parenting" OR "responsive feeding" OR "caregiver responsiveness" OR "parent-child interaction" OR "parenting intervention*" OR "caregiving behavior*" AND "Stunting"[Mesh] OR "Growth Disorders"[Mesh] OR "linear growth faltering" OR "stunting" OR "height-for-age" OR "HAZ" OR "catch-up growth" OR "growth recovery" AND "Child Nutrition"[Mesh] OR "Feeding Behavior"[Mesh] OR "feeding practice*" OR "child nutrition" OR "nutritional status" OR "child development".

The search encompassed articles published from 1 January 2020 to 31 December 2025. The final database search was conducted on 15 January 2026. PubMed, Scopus, ScienceDirect, and Google Scholar yielded 1,042 records before deduplication. Duplicates were removed using Mendeley and manually verified for accuracy prior to screening. Given the large volume of records retrieved by Google Scholar, additional screening limits were applied to ensure feasibility and methodological transparency. Results were sorted by relevance, and the first 200 records (approximately the first 20 pages) were screened for potential inclusion. This cutoff was justified because studies beyond the initial several hundred results are generally less relevant due to Google Scholar's relevance-ranking algorithm. All titles and abstracts within this predefined range were assessed using the same inclusion and exclusion criteria as those applied to other databases. This approach is commonly employed in evidence synthesis studies to balance practicality and reproducibility when searching Google Scholar.

Study Selection, Setting and Data Extraction

The study selection process adhered to the PRISMA-ScR framework. The initial literature search and record compilation were performed by R. Title, and abstract screening was conducted independently by R. and a second reviewer, based on predefined eligibility criteria. Articles that met these criteria underwent full-text review. Eligibility was independently assessed by both reviewers. Disagreements were resolved through discussion until consensus was achieved. Figure 1 presents the PRISMA-ScR flow diagram illustrating this process.

The studies included in this review were conducted across diverse geographical settings, encompassing both high-income countries and low- and middle-income regions where stunting remains a significant public health concern. This diversity enabled the review to capture variations in intervention strategies, caregiving practices, and health system contexts. A structured data extraction form was developed to ensure consistent collection of relevant study information. Extracted data comprised authors' names, year of publication, study location or country, and study design. Additional data included characteristics of the study population, criteria used to define stunting (where applicable), the type of parenting intervention or caregiving practice examined, and, if reported, the theoretical framework underpinning the intervention. Outcome measures and key findings were also documented. Data extraction was conducted independently by two reviewers, with any discrepancies resolved through discussion or consultation with a third reviewer to ensure accuracy and reliability.

Critical Appraisal of Study Included

Consistent with methodological guidance for scoping reviews, this review did not include a formal critical appraisal of study quality. The primary objective of a scoping review is to map the breadth and characteristics of available evidence rather than to assess intervention effectiveness or generate pooled quantitative estimates. Given the diversity of study designs in the included literature, applying a single standardized quality appraisal tool was deemed inappropriate for this review's exploratory aims. Nevertheless, key methodological characteristics of each study, including study design, population description, intervention components, and reported outcomes, were systematically extracted and described to provide contextual understanding of the evidence base. This approach aligns with PRISMA-ScR recommendations, which indicate that critical appraisal may be omitted when the review objective is evidence mapping rather than evidence grading.

Data Synthesis

Because of heterogeneity in study designs, intervention characteristics, and outcome measures, the findings were synthesized using narrative and thematic methods rather than a quantitative meta-analysis. This approach enabled integration of evidence across diverse methodological traditions and research contexts. The synthesis identified major thematic patterns in the literature concerning responsive parenting and its influence on child nutritional outcomes. It emphasized the relationship between responsive parenting practices and children's growth trajectories, the characteristics and implementation strategies of evidence-based parenting interventions that support nutritional rehabilitation, and the behavioral or psychosocial mechanisms that facilitate improvements in child growth and development. These mechanisms include the quality of parent-child interactions, caregiver responsiveness during feeding, and emotional security within the caregiving environment.

Additionally, differences between studies focusing on children with confirmed stunting and those addressing broader nutrition-related populations were considered to enhance understanding of the evidence landscape.

Ethical consideration

This review relied only on previously published and publicly available research. As a result, ethical approval was not required. The review process upheld principles of academic integrity and responsible reporting throughout

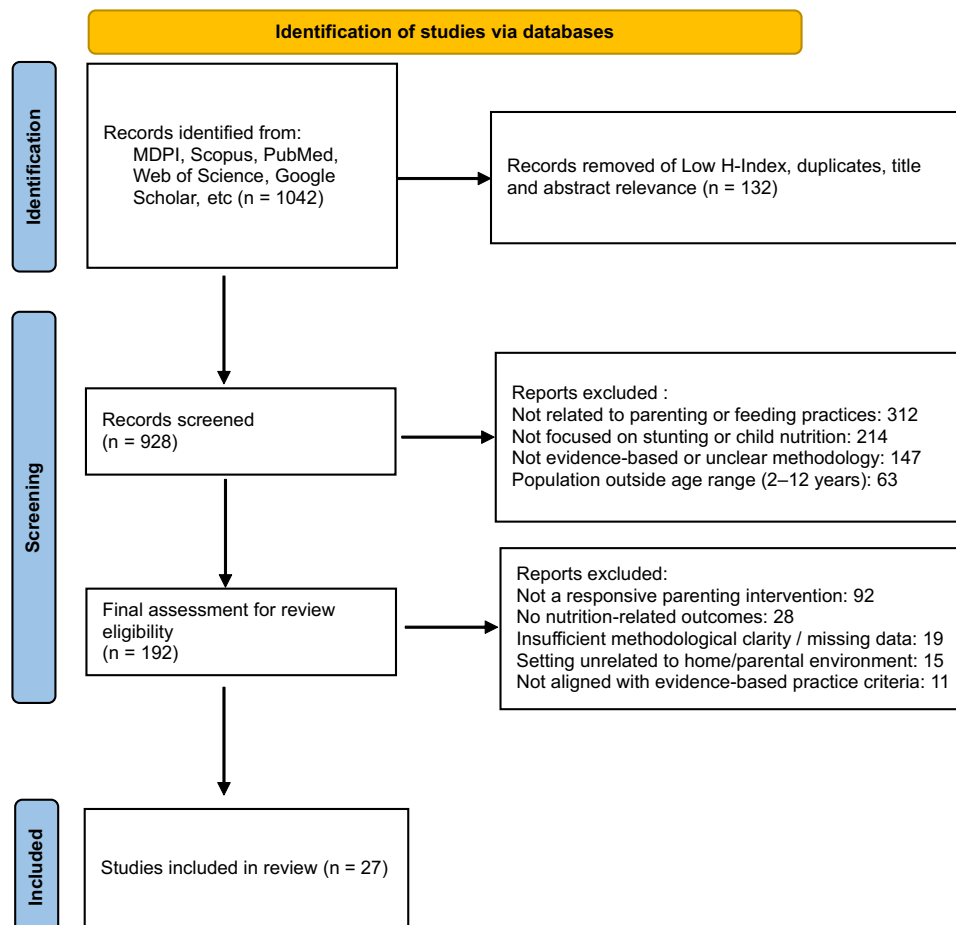


Figure 1. PRISMA Flow Chart

RESULT AND DISCUSSION

RESULT

Twenty-seven studies published within the last five years met the eligibility criteria and were included in this scoping review. These studies offer insights into how responsive parenting practices, when applied within evidence-based frameworks, contribute to improvements in nutrition among children with a history of stunting. The evidence indicates a growing interdisciplinary focus on caregiving behaviour to promote catch-up growth and developmental recovery. Table 1 summarizes key methodological characteristics of the included studies, including study design, sample size, confirmation of stunting history, and primary outcome measures.

Table 1. Summary of Included Studies in the Scoping Review

No	Author & Year	Country	Study Design	Sample Size (n)	Population	Stunting History Confirmed	Outcome Measures	Key Focus	Main Findings
1	Adinissa & Yoenanto (2025)	Indonesia	Cross-sectional study	Parents with young children (n not specified)	Parents & early childhood	No	Parent responsiveness scale, attachment indicators	Secure attachment & parenting responsiveness	Secure attachment strengthens responsiveness supporting emotional regulation in feeding interactions
2	Ahun et al. (2024)	Global	Meta-analysis	152 intervention programs	Parenting interventions	No	Child development indicators	Implementation quality of parenting programs	Structured interventions with high fidelity improve child development outcomes
3	Akbar et al. (2023)	Indonesia	Cross-sectional study	Children with stunting (n not specified)	Stunted children	Yes	HAZ, developmental assessment	Stunting and child development	Stunting associated with delays in cognitive and motor development
4	Anikiej-Wiczenbach et al. (2024)	Poland	Observational study	Parents (n not specified)	Mothers & fathers	No	Parental sensitivity scale, socioemotional outcomes	Observed vs self-reported responsiveness	Higher parental sensitivity predicts improved socioemotional wellbeing
5	Apriyanti Latifah & Puspitawati (2025)	Indonesia	Cross-sectional study	Stunted toddlers (n not specified)	Stunted toddlers & caregivers	Yes	HAZ, caregiving quality indicators	Quality of care determinants	Gender roles and posyandu participation influence caregiving quality
6	Arief et al. (2025)	Indonesia	National cross-sectional survey	~74,000 children	Children under five	Yes (national dataset)	HAZ, household determinants	Socioenvironmental factors of stunting	Home environment and parental behaviors correlate with stunting prevalence
7	Casey Winsler (2025)	United States	Narrative review	N/A	Children in childcare	No	Developmental indicators, food insecurity measures	Food insecurity and caregiving	Responsive caregiving mitigates developmental risks

8	Clément & Tereno (2023)	Global	Systematic review	29 studies	Parent-child feeding interactions	No	Feeding behavior outcomes	Attachment and feeding routines	Responsive parenting reduces maladaptive feeding behaviors
9	da Fonseca et al. (2025)	Global	Integrative review	N/A	Children with feeding difficulties	No	Feeding difficulty indicators	Family role in feeding challenges	High parental responsiveness reduces feeding problems
10	Dewi et al. (2025)	Indonesia	Systematic review	Children 0-59 months	Young children	Yes	HAZ, nutritional indicators	Determinants of stunting	Parental care quality associated with reduced stunting risk
11	Dusi et al. (2023)	Brazil	Cross-sectional study	564 caregivers	Caregivers and children	No	Feeding competence scale	Division of responsibility in feeding	Responsive feeding improves child eating competence
12	Edwards et al. (2025)	United Kingdom	Ecological Momentary Assessment	Parents & children (n not specified)	Families with young children	No	Eating self-regulation indicators	Structure-based feeding practices	Autonomy-supportive feeding strengthens self-regulated eating
13	Fauziyyatun et al. (2024)	Indonesia	Comparative cross-sectional	Stunted vs non-stunted toddlers	Toddlers	Yes	Developmental assessment	Parenting style & stimulation	Responsive parenting improves socio-emotional outcomes
14	Foster et al. (2025)	United States	Non-randomized intervention study	82 parent-child dyads	Caregivers & children	No	Feeding behavior scales	Responsive feeding intervention	Improves caregiver self-efficacy and feeding behavior
15	Grammer et al. (2022)	Global	Systematic review	67 studies	Children and parents	No	Eating self-regulation	Parent-child influence on eating	Responsiveness supports healthy appetite development
16	Hossain et al. (2024)	Bangladesh	Cluster Randomized Controlled Trial	~2,000 children	Young children	Yes	HAZ, cognitive and motor development scores	Parenting + nutrition intervention	Significant improvements in developmental outcomes
17	Ichromy et al. (2025)	Indonesia	Cross-sectional study	Toddlers (n not specified)	Young children	Not specified	Developmental indicators	Responsive caregiving	Strong association with developmental outcomes

18	Laila et al. (2025)	Indonesia	Qualitative phenomenology	Mothers of stunted toddlers	Mothers	Yes	Qualitative themes	Parenting perceptions	Inconsistent responsiveness linked to poor nutritional recovery
19	Lobo et al. (2024)	Global	Scoping review protocol	N/A	N/A	N/A	N/A	Framework for responsive caregiving	Provides conceptual framework for future research
20	Mahirah & Sampe Tondok (2024)	Indonesia	Cross-sectional study	Adolescents	Adolescents	No	Psychological indicators	Responsive parenting communication	Responsiveness fosters emotional stability
21	Marie-Mitchell et al. (2024)	United States	Scoping review	Parenting programs	Parents	No	Relational health indicators	Parenting education	Programs improve parental sensitivity
22	McIsaac et al. (2022)	Global	Scoping review	Childcare institutions	Childcare providers	No	Feeding practice indicators	Responsive feeding implementation	Training improves implementation
23	Megasari Winahyu et al. (2023)	Indonesia	Cross-sectional study	Picky eater children	Children	No	Dietary intake indicators	Responsive feeding	Improves nutritional intake and reduces mealtime conflict
24	Nurhayati et al. (2024)	Indonesia	Cross-sectional study	Preschool children with stunting	Children with stunting	Yes	Psychosocial development scores	Parenting and stimulation	Positive parenting improves psychosocial outcomes
25	Sampaio et al. (2024)	Global	Systematic review of economic evaluations	14 studies	Parenting interventions	No	Economic outcomes	Cost-effectiveness	Parenting programs are cost-effective
26	Santana-Ferrándiz et al. (2025)	Europe	Systematic review	67 studies	Parents & children	No	Socioemotional outcomes	Parental sensitivity	High sensitivity improves socioemotional development
27	Sofiatun & Deviantony (2024)	Indonesia	Systematic review	12 studies	Toddlers	Yes	Nutritional status indicators (HAZ/WAZ)	Parenting styles & nutrition	Responsive parenting improves dietary outcomes

Descriptive Characteristics

The studies included in this scoping review constitute a broad and methodologically diverse evidence base examining responsive parenting, feeding practices, and nutritional outcomes among infants and young children, including those with a history of stunting. Consistent with global epidemiological patterns, many studies were conducted in regions with high burdens of childhood undernutrition, notably Southeast Asia (Indonesia, Pakistan, Bangladesh), South Asia, and Sub-Saharan Africa. Research from these regions is particularly valuable because it reflects real-world conditions in which structural determinants—such as household food insecurity, limited healthcare access, socioeconomic disparities, and entrenched cultural feeding norms—interact to shape child growth and developmental trajectories.

Sample sizes across the included literature varied considerably, reflecting the diverse research aims and methodological approaches in the field. Small-to-medium qualitative and mixed-methods studies typically involved 40 to 120 participants and focused on caregiver perceptions, responsive feeding experiences, cultural meaning-making, and barriers to adopting recommended parenting practices. Conversely, larger quantitative intervention studies recruited between 400 and 900 mother–child dyads, allowing for robust estimation of effects on nutritional or developmental outcomes. This variation in sample sizes and population characteristics underscores the dynamism of the emerging evidence base and supports the transferability of findings across diverse contexts.

The studies also exhibited substantial methodological heterogeneity. Randomized controlled trials (RCTs) provided high-quality evidence on the causal effects of responsive parenting or feeding interventions on outcomes such as growth indicators, dietary diversity, and child development scores. Examples include parenting–nutrition integration trials, structured coaching models, and community-based support programs delivered through social safety-net platforms. Quasi-experimental designs also provided valuable insights, particularly when RCTs were not feasible due to ethical or logistical constraints. In addition to these quantitative studies, systematic, narrative, and integrative reviews enriched the conceptual and theoretical underpinnings of responsive caregiving and feeding.

Outcome of Studies

Across the included studies, the primary outcome consistently reported was improvement in child nutritional status, assessed using standardized indicators such as weight-for-age (WAZ), height-for-age (HAZ), weight-for-height (WHZ), and dietary diversity score. Evidence indicated that responsive parenting interventions delivered through structured parenting programs, home visits, or community-based education were associated with significant improvements in these nutritional measures. Several studies documented measurable gains in linear growth and dietary variety within relatively short intervention periods, indicating that caregiver behavior plays a crucial role in promoting catch-up growth despite persistent environmental constraints (24–27).

Improvements in feeding interactions emerged as a critical factor underlying these outcomes. Interventions emphasizing responsive feeding such as allowing children to self-pace meals, responding appropriately to hunger and satiety cues, and avoiding coercive feeding demonstrated stronger effects on child nutritional indicators (28–30). This finding supports the theoretical assertion that nurturing and emotionally attuned caregiving enhances children’s willingness to eat, improves appetite regulation, and facilitates nutrient intake.

In addition to nutritional improvements, studies frequently reported a range of secondary outcomes that further elucidate the benefits of responsive parenting. Reductions in feeding difficulties were consistently observed across interventions, with caregivers reporting fewer episodes of food refusal, tantrums during meals, and maladaptive feeding behaviors. Enhanced caregiver self-efficacy indicates that parents gained confidence in managing feeding routines, interpreting child cues, and providing structured yet flexible mealtime environments (30–33).

Several studies found improvements in child appetite cues, with more consistent eating patterns and a greater willingness to try new foods. Psychosocial stimulation also improved in households receiving responsive parenting support. Caregivers engaged more often in play, communication, and emotional interaction factors known to support cognitive development and appetite regulation (34–36). Increased parental knowledge about nutrition, early childhood development, and feeding strategies was common. Improvements in the home feeding environment were also reported, such as greater availability of nutritious foods and more consistent feeding schedules.

Mechanisms Identified

Multiple mechanisms have been identified across studies to explain how responsive parenting facilitates nutritional recovery in children with a history of stunting. A key mechanism involves strengthening parent–child bonding, which establishes a secure relational context that increases children’s comfort during meals, reduces stress, and promotes more effective nutrient intake. Enhanced parental sensitivity to hunger and satiety cues enables caregivers to adjust feeding practices appropriately, thereby preventing both underfeeding and overfeeding (37–42).

Structured and positive feeding routines emerged as another critical mechanism. These routines promote predictable mealtime patterns and reduce feeding-related conflict. Interventions also mitigated coercive or negligent feeding practices. They encouraged caregivers to adopt nurturing strategies that respect the child’s autonomy while maintaining adequate nutritional guidance (43,44). Finally, enhanced emotional security was shown to support appetite regulation. Children who feel safe, understood, and emotionally connected to their caregivers are more likely to exhibit healthy eating behaviors and achieve consistent nutritional gains (37,42).

DISCUSSION

This scoping review synthesizes recent evidence regarding the impact of responsive parenting on the nutritional status of children with a history of stunting. Research consistently demonstrates that responsive caregiving promotes healthier feeding practices, enhanced developmental outcomes, and improved growth. The role of responsive parenting in nutritional recovery is underscored by its influence on attachment, emotional regulation, and child autonomy during feeding.

Alignment with Theoretical and Empirical Evidence

The findings from the reviewed literature strongly correspond with attachment theory, the Nurturing Care Framework, and the principles of responsive feeding. Empirical studies conducted in Indonesia indicate that secure attachment significantly enhances parental responsiveness, which serves as a foundation for emotional regulation and directly influences feeding interactions (42). Additionally, observational data indicate that parental sensitivity is a strong predictor of children’s socioemotional well-being, a developmental domain closely associated with appetite regulation and eating behavior (13). These findings align with global systematic reviews demonstrating that responsive parenting protects children from maladaptive feeding behaviors and promotes healthier routines and food-related interactions (37,39).

Broader evidence in child development reinforces this association. Children with stunting frequently exhibit cognitive and motor delays (1), while responsive caregiving is consistently associated with improvements in these areas (15,27,34). Caregiver sensitivity, warm interactions, and non-coercive feeding practices mitigate risks related to food insecurity and household stress (40). Economic evaluations indicate that parenting interventions. Not all studies reported strong effects; outcomes varied according to cultural feeding norms, intervention intensity, and caregiver readiness. For example, gender roles and caregiver workload influenced care for stunted toddlers in certain Indonesian contexts, while participation in posyandu programs appeared to improve caregiving quality. In settings where coercive feeding is prevalent, caregivers require additional support to adopt responsive feeding practices. These variations emphasize the necessity for cultural adaptation and structured implementation strategies. These differences highlight the need for Mechanisms Underlying Nutritional Improvement.

Mechanisms Underlying Nutritional Improvement

Studies identified key mechanisms linking responsive parenting and nutrition. Stronger parent–child bonds foster emotional security, making children more willing to eat and try new foods. Recognizing hunger and satiety cues discourages coercive feeding and supports self-regulation, as shown in global research. Structured routines, autonomy-supportive feeding, and less conflict further foster appetite regulation. This review further emphasizes that responsive parenting reduces feeding difficulties by promoting calmer, more predictable interactions that help children feel secure during mealtimes. Integrative reviews indicate that high parental responsiveness significantly decreases the prevalence of feeding challenges in early childhood (41). Conversely, inconsistent responsiveness has been shown to hinder nutritional recovery among stunted toddlers in qualitative research conducted in Indonesia

(9). Collectively, these mechanisms illustrate the interconnected emotional, relational, and behavioral factors influencing nutrition.

Public Health and Programmatic Implications

The implications for public health are significant. As stunting-reduction efforts increasingly incorporate behavioral and relational components, responsive parenting has become a critical factor in improving child nutrition and developmental outcomes. Large-scale analyses demonstrate that structured, high-fidelity parenting programs are more effective across diverse contexts (24). These results align with reviews indicating that parenting education programs improve relational health, increase caregiver sensitivity, and strengthen bonding, thereby promoting healthier feeding practices (26).

Responsive parenting complements nutrition-specific interventions. Whereas biomedical programs target physiological deficits, caregiver-focused interventions establish the behavioral and emotional conditions necessary for sustained improvement. Research linking parental care quality and stimulation to reduced stunting risk highlights caregiving as a key determinant of early growth (5). Additionally, evidence from community-based interventions addressing feeding autonomy and eating competence supports the integration of relational and behavioral strategies into national stunting-reduction policies (28).

Scaling responsive parenting approaches yields additional benefits for long-term development. Numerous studies report enhancements in socioemotional functioning, cognitive abilities, and resilience (12,29,34). Therefore, responsive caregiving constitutes more than a supplementary strategy; it represents a high-impact intervention that fortifies human capital throughout the lifespan.

Cultural and Structural Considerations

Cultural norms significantly influence caregivers' interpretations and implementation of responsive feeding recommendations. Research indicates that beliefs regarding food refusal, mealtime obedience, and parental authority affect the adoption of responsive practices (9,36). Programs that recognize these norms and integrate culturally relevant materials or community-based coaching are more acceptable and engaging.

Structural constraints, including poverty, food insecurity, and heavy caregiver workload, also shape the feasibility of implementing responsive parenting behaviors. National-level data demonstrate that socioenvironmental determinants are strongly associated with stunting, underscoring the importance of supportive home environments and caregiver capacity (7). Addressing these constraints may require integrating with social protection programs, maternal support groups, or food assistance schemes to ensure caregivers can consistently apply behavioral recommendations.

Methodological Strengths and Gaps

The included studies use diverse methods, such as cross-sectional analyses, randomized trials, systematic reviews, and qualitative explorations. This diversity enriches the synthesis, but it also brings limitations. Differences in how responsive parenting is measured limit comparability across studies. Some studies also lacked long-term follow-up, making it difficult to judge lasting improvements in feeding behavior and nutrition.

Differences in intervention fidelity, such as the intensity of caregiver training and the consistency of coaching sessions, were highlighted as determinants of program success (24). Implementing scientific approaches and standardized training frameworks may help strengthen the quality and scalability of future interventions.

Future Research Directions

Future studies should prioritize the development of standardized tools for measuring responsive feeding and parenting sensitivity across cultures, enabling more robust comparisons. Research examining dose-response relationships and optimal program duration is needed, particularly in low-resource settings. Hybrid models that combine digital delivery with in-person coaching have the potential to improve accessibility and caregiver engagement.

Research should also explore moderating factors such as maternal mental health, paternal involvement, and household food dynamics, all of which influence the caregiving environment. Longitudinal and mixed-methods

designs provide deeper insights into how responsive parenting practices evolve over time and interact with contextual determinants of nutrition and development.

CONCLUSION

This scoping review demonstrates that evidence-based responsive parenting practices significantly support nutritional recovery in children with a history of stunting. Responsive caregiving improves dietary intake, enhances feeding interactions, and promotes catch-up growth by reinforcing emotional and behavioral mechanisms. The review recommends integrating responsive parenting modules into maternal and child health programs. For health centers and community health workers, structured parenting support could enhance the effectiveness of nutritional interventions. Future research should improve methodological rigor and investigate culturally adapted models to maximize impact across diverse populations.

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AUTHOR'S CONTRIBUTION STATEMENT

R conceptualized the study, formulated the research questions, developed the review protocol, conducted literature searches, screened articles according to criteria, extracted data, and drafted the manuscript. WHJ developed the methodology, verified the selected articles, analyzed and synthesized data, prepared tables and figures, and reviewed and edited the manuscript. WH supervised the research, validated the methodology and results, critically reviewed the manuscript, provided guidance, and approved the final version.

CONFLICT OF INTEREST

No. conflict of interest to declare in study

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

No AI Tools

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