

The Roles of Feeding Practices and Maternal Factors in Determining Nutritional Status among Children Under Five Years of Age: A Structured Narrative Review

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Article Info	Abstract
Article History: Key words: Children under five years; Feeding practices; Maternal factors; Nutritional status; Structured narrative review	Background: The nutritional status of children under five years remains a major global public health concern due to its substantial impact on child growth, development, and survival. Although numerous studies have investigated factors associated with child malnutrition, evidence regarding the roles of feeding practices and maternal factors remains fragmented across different settings. This structured narrative review aimed to synthesize current evidence on the roles of feeding practices and maternal factors in determining the nutritional status of children under five years. Methods: A structured narrative review was conducted by synthesizing evidence from original studies investigating determinants of nutritional status among children under five years. Eligible studies were identified through a systematic literature search based on predefined inclusion and exclusion criteria. Data were extracted using a standardized form and synthesized narratively through thematic analysis, with findings summarized using an evidence synthesis matrix. Results: Ten original studies conducted in Indonesia, Ethiopia, Bangladesh, India, and Nigeria were included. Six major domains of determinants were identified: maternal factors, feeding practices, child factors, household socioeconomic factors, infectious diseases, and environmental and health service factors. Maternal education, maternal nutritional status, and maternal nutrition knowledge were the most consistently reported determinants of children's nutritional status. Appropriate feeding practices, including exclusive breastfeeding, complementary feeding, dietary diversity, and adequate feeding frequency, were generally associated with improved nutritional outcomes, although findings varied across studies. Conclusion: The nutritional status of children under five years is influenced by multiple interconnected determinants, with maternal characteristics and feeding practices emerging as the most consistent factors. Integrated and multisectoral interventions addressing maternal empowerment, optimal feeding practices, child health, and household environments are essential to improve child nutritional outcomes.

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INTRODUCTION

Malnutrition among children under five remains one of the most important public health challenges worldwide because of its

profound effects on child survival, growth, cognitive development, and long-term human capital (Wambua *et al.*, 2025). Undernutrition (including stunting, wasting, and underweight) continues to contribute substantially to

childhood morbidity and mortality, particularly in low- and middle-income countries (Schneider *et al.*, 2026). Although considerable progress has been achieved over the past decades, the prevalence of undernutrition remains unacceptably high in many regions, indicating that child malnutrition continues to be a major barrier to achieving the Sustainable Development Goals (SDGs), especially those related to health, nutrition, and human development (Moramarco *et al.*, 2025).

The nutritional status of children under five is determined by a complex interaction of biological, behavioral, socioeconomic, and environmental factors (Esmiralda *et al.*, 2025). Maternal characteristics, such as educational attainment, nutritional status, and nutrition knowledge, influence childcare practices and household decision-making. Likewise, infant and young child feeding practices (including exclusive breastfeeding, timely complementary feeding, dietary diversity, and appropriate feeding frequency) are recognized as essential determinants of optimal growth during the first 1,000 days of life (Venkatesh *et al.*, 2026). In addition, child-related factors (such as birth weight and infectious diseases), household socioeconomic conditions, environmental sanitation, and access to healthcare services further shape children's nutritional outcomes. These multidimensional determinants highlight that child nutrition cannot be explained by a single factor but rather by the interaction of multiple underlying causes.

Numerous primary studies conducted in different countries have investigated factors associated with child nutritional status. However, the reported findings remain heterogeneous. While several studies have demonstrated that appropriate feeding practices are significantly associated with better nutritional outcomes, others have reported weak or non-significant associations after accounting for maternal, socioeconomic, or environmental characteristics (Katoch, 2022; Zhang *et al.*, 2026). Similarly, maternal education, household income, and child morbidity have shown varying magnitudes of association across different populations and settings (Sartorius *et al.*, 2020). Such

inconsistencies make it challenging for health professionals, policymakers, and researchers to identify which determinants are most consistently associated with child nutritional status and therefore should be prioritized in intervention programmes.

Previous review articles have generally focused on specific geographical regions or particular determinants of child malnutrition, whereas comprehensive syntheses integrating maternal characteristics, feeding practices, child-related factors, socioeconomic conditions, environmental influences, and health service factors across different countries remain limited (Amouzou *et al.*, 2025). A broader synthesis is therefore needed to provide a more comprehensive understanding of how these determinants collectively influence nutritional outcomes among children under five and to identify recurring patterns that may inform evidence-based nutrition strategies in maternal and child health.

Therefore, this narrative review aims to synthesize current evidence regarding the determinants of nutritional status and feeding practices among children under five by integrating findings from original studies conducted in various countries. The review is expected to provide a comprehensive overview of the most consistent determinants of child nutritional status and to support the development of integrated nutrition interventions, particularly within maternal and child health services from both nursing and midwifery perspectives.

METHODS

This study employed a structured narrative review to synthesize evidence on the roles of feeding practices and maternal factors in determining the nutritional status of children under five years. A systematic literature search was conducted in PubMed, Scopus, ScienceDirect, Google Scholar, and Garuda Portal using combinations of keywords related to nutritional status, malnutrition, feeding practices, complementary feeding, exclusive breastfeeding, and children under five, combined with Boolean operators (AND/OR).

Eligible studies were original observational research (cross-sectional, case-control, cohort) or secondary analyses of nationally representative datasets involving children aged 0–59 months or 6–59 months. Studies were required to assess nutritional status using WHO anthropometric indicators (e.g., stunting, wasting, underweight, or overweight) and investigate one or more determinants, including maternal, child, feeding, household socioeconomic, environmental, or health service-related factors. Review articles, editorials, conference abstracts, and studies that did not examine determinants of nutritional status were excluded.

Retrieved articles were screened by title, abstract, and full text according to predefined eligibility criteria. Data extracted from each study included publication characteristics, study design, setting, sample size, participant characteristics, determinants investigated, nutritional status indicators, statistical analyses, and principal findings. Each study was further mapped using the Population–Exposure–Comparator–Outcome (PECO) framework. The findings were synthesized

narratively using a thematic approach, with determinants categorized into maternal, feeding, child, household socioeconomic, infectious disease, environmental, and health service domains. Cross-study comparisons were subsequently performed to identify consistent and divergent evidence across different countries and study settings.

RESULTS

Characteristics of Included Studies

A total of ten original studies met the eligibility criteria and were included in this structured narrative review (Table 1). The studies were conducted across five countries, namely Indonesia (n = 4), Ethiopia (n = 2), Bangladesh (n = 1), India (n = 1), and Nigeria (n = 1), with one additional multicenter study conducted in remote communities. Most studies employed a cross-sectional design (n = 8), while one study used a community-based case-control design and one analyzed nationally representative survey data. Sample sizes varied substantially, ranging from 71 to 127,813 children under five years of age.

Table 1. Characteristics of the Studies Included in the Review

Author	Code	Country	Design	Sample	Outcome	Main determinants
Suardika & Bolkiah (2025)	A1	Indonesia	Cross-sectional	250	Stunting, wasting, underweight	Maternal education, dietary diversity, sanitation
Amare <i>et al.</i> (2019)	A2	Ethiopia	EDHS analysis	>9000	Stunting, wasting	Maternal BMI, education, wealth
Pasha <i>et al.</i> (2025)	A3	Bangladesh	Cross-sectional	543	Stunting, wasting, underweight	Maternal BMI, diarrhea, breastfeeding
Palupi <i>et al.</i> (2019)	A4	Indonesia	Cross-sectional	185	WAZ, HAZ, WHZ	Feeding practice
Purwanti <i>et al.</i> , (2025)	A5	Indonesia	Cross-sectional	97	Nutritional status	Maternal factors, responsive feeding
Chekol <i>et al.</i> , (2022)	A6	Ethiopia	Case-control	327	Wasting	MPASI, food diversity, ARI
Pradhan & Shete (2023)	A7	India	NFHS	127,813	Stunting, wasting, underweight	Maternal education, wealth
Hartati <i>et al.</i> (2024)	A8	Indonesia	Cross-sectional	149	Undernutrition	Breastfeeding, infection, knowledge
Sowunmi <i>et al.</i> (2024)	A9	Nigeria	NDHS	3177	Malnutrition	Household economy, maternal education
Purba <i>et al.</i> , (2020)	A10	Indonesia	Cross-sectional	71	Nutritional status	Knowledge, perception, exclusive breastfeeding

Description: weight-for-age (WAZ); height-for-age (HAZ);
weight-for-height (WHZ)

All included studies assessed children's nutritional status using anthropometric indicators based on the World Health Organization (WHO) Child Growth Standards. The reported outcomes included stunting, wasting, underweight, overall malnutrition, or combinations of these indicators. Across the included studies, determinants of nutritional status encompassed maternal factors, feeding practices, child characteristics, household socioeconomic conditions, infectious diseases, environmental factors, and access to health services.

Distribution of Nutritional Determinants Across Studies

The identified determinants were categorized into six major domains: maternal factors, feeding practices, child factors, household socioeconomic factors, infectious diseases, and environmental or health service-related factors (Table 2). Maternal factors were investigated in all included studies and represented the most frequently examined domain. These included maternal education, nutritional status, nutrition knowledge, occupation, age, and decision-making capacity. Feeding practices were also widely evaluated, particularly exclusive breastfeeding, complementary feeding, dietary diversity, feeding frequency, and responsive feeding.

Table 2. Summary of Nutritional Determinants Identified Across the Included Studies

Determinant Domain	Specific Determinant	Included Studies
Maternal Factors	Maternal education	A1, A2, A3, A7, A9, A10
	Maternal nutritional status/BMI	A2, A3, A5, A7
	Maternal nutrition knowledge	A5, A8, A10
	Maternal age	A5, A9
	Maternal occupation	A5, A8, A9
	Maternal empowerment/decision making	A6
	Maternal perception toward child nutrition	A10

Child Factors	Child age	A2, A3, A7
	Child sex	A2, A3, A7
	Birth weight/LBW	A2, A5, A8
Feeding Practices	Immunization	A7, A8
	Exclusive breastfeeding	A3, A8, A10
	Complementary feeding	A4, A6, A8
	Dietary diversity	A1, A5, A6
	Feeding frequency	A4, A6
	Responsive feeding	A5
	Feeding during illness/recovery	A5
	Healthy snack consumption	A5
Infectious Diseases	Diarrheal disease	A3, A8
	Acute respiratory infection (ARI)	A6
	Infectious diseases (overall)	A3, A8
Household Socioeconomic Factors	Household income	A3, A5, A8, A9, A10
	Wealth index	A2, A7
	Household size	A9
	Residence (urban/rural)	A2, A7
Environmental Factors	Sanitation/toilet facilities	A1, A2
	Cooking fuel	A2
	Distance/access to health facility	A1, A9

Child-related determinants included age, sex, birth weight, and immunization status. Household socioeconomic determinants comprised household income, wealth index, household size, maternal employment, and place of residence. Several studies additionally investigated infectious diseases, including diarrheal disease and acute respiratory infection, as well as environmental determinants such as sanitation, cooking fuel, and access to health services.

Evidence Synthesis of Nutritional Determinants

The evidence synthesis matrix (Table 3) demonstrated that maternal education was the determinant most consistently associated with children's nutritional status, followed by maternal nutritional status, household

socioeconomic conditions, and feeding practices. Appropriate feeding practices, including exclusive breastfeeding, complementary feeding, dietary diversity, and adequate feeding frequency, were generally associated with improved nutritional

outcomes, although one study reported no statistically significant association between feeding practices and anthropometric indicators.

Table 3. Evidence Matrix of the Association Between Nutritional Determinants and Nutritional Status Among Children Under Five Years

Determinant	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	Consistency
Maternal education	✓	✓	✓	–	–	–	✓	✓	✓	✓	Strong
Maternal nutritional status/BMI	–	✓	✓	–	✓	–	✓	–	–	–	Strong
Maternal nutrition knowledge	–	–	–	–	✓	–	–	✓	–	✓	Moderate
Household income/wealth	–	✓	✓	–	✓	–	✓	✓	✓	–	Strong
Birth weight/LBW	–	✓	–	–	✓	–	–	✓	–	–	Moderate
Child age	–	✓	✓	–	–	–	✓	–	–	–	Moderate
Child sex	–	✓	✓	–	–	–	✓	–	–	–	Moderate
Exclusive breastfeeding	–	–	✓	NS	–	–	–	✓	–	✓	Moderate
Complementary feeding	–	–	–	NS	✓	✓	–	✓	–	–	Moderate
Dietary diversity	✓	–	–	NS	✓	✓	–	–	–	–	Moderate
Feeding frequency	–	–	–	NS	–	✓	–	–	–	–	Limited
Responsive feeding	–	–	–	–	✓	–	–	–	–	–	Limited
Diarrheal disease	–	–	✓	–	–	–	–	✓	–	–	Moderate
Acute respiratory infection	–	–	–	–	–	✓	–	–	–	–	Limited
Sanitation	✓	✓	–	–	–	–	–	–	–	–	Moderate
Access to health services	✓	–	–	–	–	–	✓	–	✓	–	Moderate

Abbreviations: ✓ = significant association with nutritional status; NS = no significant association; – = determinant not assessed.

Child-related factors, particularly low birth weight, increasing age, and recurrent infectious diseases, were frequently associated with a higher risk of undernutrition. Household income and wealth were also consistently related to nutritional status across several countries. Environmental determinants, including sanitation and access to health services, were less frequently investigated but

showed significant associations in the studies where they were assessed.

Overall, the included evidence indicates that the nutritional status of children under five is influenced by multiple interrelated determinants operating at maternal, child, household, and community levels. The consistency of findings across different geographical settings supports the multidimensional nature of child malnutrition.

DISCUSSION

This structured narrative review synthesized evidence from ten original studies examining the roles of feeding practices and maternal factors in determining the nutritional status of children under five years, while also considering child, household, environmental, and health service-related determinants. Overall, the findings demonstrate that child nutritional status is shaped by a complex interplay of multidimensional factors, with maternal characteristics emerging as the most consistent determinants across different countries and study settings. Although the magnitude of associations varied, the collective evidence indicates that optimal child nutrition cannot be achieved through feeding interventions alone but requires comprehensive strategies addressing maternal, household, and community contexts.

Maternal factors were the most consistently reported determinants across the included studies. Maternal education, nutritional status, and nutrition knowledge were repeatedly associated with improved nutritional outcomes among children under five. These findings suggest that maternal capacity extends beyond biological influences and encompasses health literacy, caregiving practices, household decision-making, and the ability to access and utilize health services. Mothers with higher educational attainment and better nutritional status are generally more capable of adopting appropriate child-feeding practices, recognizing signs of illness, and seeking timely healthcare, thereby creating a supportive environment for optimal child growth (Fitri *et al.*, 2026; Rezaeizadeh *et al.*, 2024). This evidence reinforces the central role of women in child nutrition and highlights maternal empowerment as a key component of nutrition improvement programmes (Hati *et al.*, 2025).

Feeding practices also emerged as important determinants of child nutritional status, although the findings were less consistent than those for maternal factors. Exclusive breastfeeding, timely introduction

of complementary foods, adequate dietary diversity, and appropriate feeding frequency were generally associated with better nutritional outcomes. These practices ensure sufficient energy and nutrient intake during critical periods of growth and development, particularly within the first 1,000 days of life (Sawicki *et al.*, 2025). Nevertheless, one included study found no significant association between feeding practices and anthropometric outcomes. Such inconsistencies may reflect differences in study populations, methods used to assess feeding behaviours, cultural dietary patterns, and the influence of other determinants, such as socioeconomic status or recurrent infections. Therefore, feeding practices should be interpreted within the broader context of children's living conditions rather than as isolated determinants of nutritional status.

Beyond maternal and feeding-related factors, several child characteristics were associated with nutritional outcomes. Low birth weight, increasing age, and exposure to infectious diseases, particularly diarrheal disease and acute respiratory infection, were frequently associated with undernutrition. These findings are biologically plausible, as low birth weight may impair subsequent growth trajectories, while recurrent infections reduce appetite, increase metabolic demands, impair nutrient absorption, and contribute to growth faltering (Bala *et al.*, 2024; Prendergast & Humphrey, 2014). The reciprocal relationship between infection and malnutrition further emphasizes the importance of integrating nutrition interventions with disease prevention, immunization, and early management of common childhood illnesses.

Household socioeconomic conditions also played an important role in determining child nutritional status. Household income, wealth, parental occupation, and place of residence were consistently associated with nutritional outcomes across several studies. Families with greater socioeconomic resources are more likely to provide diverse diets, maintain healthier living environments, and access quality healthcare services. Conversely, financial constraints may limit food

availability, reduce healthcare utilization, and increase children's vulnerability to illness and malnutrition. Environmental factors, including sanitation and access to health services, although investigated less frequently, also demonstrated significant associations with nutritional status. These findings support the understanding that improvements in child nutrition require not only nutrition-specific interventions but also nutrition-sensitive approaches addressing poverty, sanitation, and equitable healthcare access (de Hoop *et al.*, 2025; Nounkeu & Dharod, 2021).

Collectively, the evidence synthesized in this review aligns with the multidimensional framework of child malnutrition, in which immediate determinants, such as inadequate dietary intake and infectious diseases, are influenced by underlying maternal, household, and environmental conditions (Li *et al.*, 2024; Lubis, 2025). Rather than acting independently, these determinants interact throughout early childhood and jointly shape nutritional outcomes. This perspective highlights the need for integrated interventions that strengthen maternal education and nutrition, promote appropriate infant and young child feeding practices, improve household socioeconomic resilience, and ensure access to clean environments and quality primary healthcare. Such integrated strategies are particularly relevant for maternal and child health services, where midwives, nurses, nutritionists, and other primary healthcare professionals collaborate to support child growth and development.

Despite providing a comprehensive synthesis of current evidence, this review has several limitations. Most included studies employed cross-sectional designs, limiting causal inference between determinants and nutritional outcomes. Considerable heterogeneity was also observed in the assessment of feeding practices and nutritional indicators across studies, which may have contributed to inconsistencies in reported associations. Furthermore, as a structured narrative review, this study did not perform a formal risk of bias assessment or quantitative meta-analysis. Nevertheless, by synthesizing evidence from multiple countries and

organizing determinants into coherent thematic domains, this review provides a comprehensive overview of factors influencing the nutritional status of children under five and offers evidence that may inform future research, clinical practice, and nutrition policy.

CONCLUSION

This structured narrative review demonstrates that the nutritional status of children under five years is determined by multiple interrelated factors, with maternal characteristics and feeding practices emerging as the most consistent determinants across the included studies. Maternal education, nutritional status, and nutrition knowledge play central roles in shaping appropriate child-feeding practices and supporting optimal growth, while household socioeconomic conditions, child-related factors, infectious diseases, and environmental conditions further influence nutritional outcomes. These findings highlight the importance of integrated, multisectoral strategies that combine maternal empowerment, promotion of optimal infant and young child feeding practices, disease prevention, and improvements in household and community environments to achieve sustainable improvements in child nutrition and support evidence-based maternal and child health programmes.

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