



## Appropriate Complementary Feeding Among Indonesian Children Aged 6-23 Months: A Descriptif Literature Review

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#### ABSTRACT

The introduction of complementary foods (CF), which includes solid and semi-solid foods alongside breastfeeding, is crucial for ensuring adequate nutrition and supporting healthy growth and development in children aged 6-23 months. In Indonesia, a country with diverse cultures and socioeconomic conditions, family dynamics significantly influence practices and choices related to CF. These factors collectively shape the nutritional status and health outcomes of children during this critical developmental period. This descriptive literature review was conducted by searching electronic databases such as PubMed, Google Scholar, and local Indonesian academic repositories. Keywords used included "complementary feeding," "family dynamics," "child nutrition," and "Indonesia." The review focused on studies published in the last ten years to ensure relevance and timeliness. The results indicate that inappropriate CF practices, such as the early or late introduction of solid foods and a lack of food diversity, contribute to malnutrition. Nutritional status in this critical age group is heavily influenced by the type and timing of CF, with children receiving diverse and timely foods showing better growth outcomes. CF practices are also closely related to the incidence of diarrhea in infants. Factors such as the child's age, nutritional status, breastfeeding practices, and hygiene can affect the risk of diarrhea. Educational interventions and the provision of fortified foods can improve the growth and micronutrient status of children aged 6-23 months. Findings from various studies highlight the crucial role of appropriate CF practices in influencing the nutritional status, growth, and overall health of children aged 6-24 months. Comprehensive strategies that include education, fortification, and the promotion of local food cultures are essential for improving the nutritional outcomes and development of young children.

**Keywords:** Complementary Feeding, Children, Food Safety Practice, Nutrition

#### ABSTRAK

Pengenalan Makanan Pendamping ASI (MP-ASI), yang mencakup makanan padat dan semi-padat di samping menyusui, sangat penting untuk memastikan nutrisi yang memadai dan mendukung pertumbuhan serta perkembangan yang sehat pada anak usia 6-23 bulan. Di Indonesia, sebuah negara dengan berbagai budaya dan kondisi sosial ekonomi, dinamika keluarga secara signifikan memengaruhi praktik dan pilihan yang terkait dengan MP-ASI. Faktor-faktor ini secara kolektif membentuk status gizi dan hasil kesehatan anak-anak selama periode perkembangan kritis ini. Tinjauan literatur deskriptif ini dilakukan dengan mencari database elektronik seperti PubMed, Google Scholar, dan repositori akademik lokal Indonesia. Kata kunci yang digunakan mencakup "pemberian makanan pendamping", "dinamika keluarga", "nutrisi anak", dan "Indonesia." Tinjauan ini fokus pada studi yang dipublikasikan dalam sepuluh tahun terakhir untuk memastikan relevansi dan ketepatan waktu. Hasil menunjukkan bahwa praktik MP-ASI yang tidak tepat, seperti pengenalan makanan padat yang terlalu dini atau terlambat dan kurangnya keberagaman pangan, berkontribusi terhadap malnutrisi. Status gizi pada kelompok usia kritis ini dipengaruhi secara signifikan oleh jenis dan waktu pemberian MP-ASI, di mana anak-anak yang menerima makanan yang beragam dan tepat waktu menunjukkan hasil pertumbuhan yang lebih baik. Praktik MP-ASI juga berkaitan erat dengan kejadian diare pada balita. Faktor-faktor seperti usia anak, status gizi, praktik menyusui, dan kebersihan dapat memengaruhi risiko diare. Intervensi pendidikan dan penyediaan makanan fortifikasi dapat meningkatkan pertumbuhan dan status mikronutrien anak usia 6-23 bulan. Temuan dari berbagai studi

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menyoroti peran crucial praktik MP-ASI yang tepat dalam mempengaruhi status gizi, pertumbuhan, dan kesehatan keseluruhan anak usia 6-24 bulan. Strategi komprehensif yang mencakup pendidikan, fortifikasi, dan promosi budaya makanan lokal sangat penting untuk meningkatkan hasil gizi dan perkembangan anak-anak kecil.

**Kata Kunci:** Pemberian Makanan Pendamping, Anak, Praktik Keamanan Pangan, Nutrisi

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## INTRODUCTION

Complementary feeding, the introduction of solid and semi-solid foods alongside breast milk, is essential for ensuring adequate nutrition and promoting healthy growth and development in children aged 6-23 months (World Health Organization, 2023). In Indonesia, a country with diverse cultures and socioeconomic conditions, the practices and choices regarding complementary feeding are influenced by various factors within the family unit (Herman et al., 2023). These factors collectively shape the nutritional status and health outcomes of children during this critical period of their development (Samosir et al., 2023).

Indonesia faces a significant challenge with child malnutrition, with high rates of stunting and wasting (Jokhu et al., 2024). More than one-third of children under five are stunted, a condition that affects cognitive development and overall health (Harsanti & Ubaidillah, 2023). This alarming statistic underscores the importance of appropriate complementary feeding practices, which can provide the necessary nutrients to support growth and prevent malnutrition (Herman et al., 2023). The dynamics within families, including cultural practices, economic constraints, and educational levels, play a pivotal role in shaping these feeding practices (Baker et al., 2023).

Cultural beliefs and practices strongly influence the choice of complementary foods in Indonesian household (Suyitno et al., 2023). Traditional foods, often believed to be more nutritious and safer, are commonly preferred (D'Auria et al., 2020). These foods, such as rice porridge and mashed fruits, have been passed down through generations and are deeply rooted in the cultural fabric of Indonesian society (Kostecka et al., 2020). Additionally, religious influences, particularly Islamic dietary laws, impact food choices, ensuring that complementary foods adhere to halal standards (Umami et al., 2023).

Economic status is another critical factor affecting complementary feeding practices (Tizazu et al., 2024). Families with higher incomes have better access to a variety of foods and can afford more nutritious options, whereas low-income families may be constrained by what is affordable and available (Penne & Goedemé, 2021). This disparity can lead to inadequate nutrition among children in low-income households, further exacerbating issues of malnutrition and stunting (Caso et al., 2024). Understanding the economic dynamics at play is essential for developing targeted interventions that address these inequalities (Baye et al., 2020).

Parental education and knowledge about nutrition significantly impact complementary feeding practices (Kostecka et al., 2020). Mothers with higher educational levels are more likely to introduce a diverse range of nutrient-rich foods and are better equipped to understand the nutritional needs of their children (Mekonen et al., 2024). Health literacy, or the ability to access and understand health information, plays a crucial role in making informed feeding choices. This highlights the need for educational programs that enhance parental knowledge and promote healthy feeding practices (Costa & Oliveira, 2023).

Social influences, including the roles of extended family and community norms, also play a significant role in shaping complementary feeding practices (Roy et al., 2023). In many Indonesian households, grandparents and other extended family members are actively involved in child-rearing and decision-making about feeding (Sadruddin et al., 2019). Community norms and peer practices further influence individual family choices, with families often adhering to prevalent feeding practices within their social circles. Recognizing these social dynamics is essential for designing community-based interventions that support optimal complementary feeding practices. Based on that explanation the objective of this study is to Appropriate complementary feeding among Indonesian children aged 6-23 months.

## RESEARCH METHODS

A descriptive literature review was conducted by searching electronic databases such as PubMed, Google Scholar, and local Indonesian academic repositories. Keywords included "complementary feeding," "family dynamics," "child nutrition," and "Indonesia." The review focused on studies published in the past 10 years to ensure relevance and timeliness.

The inclusion criteria for this descriptive literature review are as follows: The population of interest includes studies involving children aged 6-23 months and their families in Indonesia. Articles considered for inclusion must be published in either English or Indonesian to ensure accessibility and comprehension. To maintain relevance and timeliness, only research published within the last ten years (2013-2023) will be included. The focus of the studies should be on complementary feeding practices, encompassing various influences on family decision-making, such as cultural, economic, educational, and social factors. Additionally, the review will incorporate descriptive studies, qualitative research, cross-sectional studies, and reviews that provide insights into the family dynamics affecting complementary food choices.

The exclusion criteria for this descriptive literature review are as follows: Studies focusing on children outside the age range of 6-23 months or not involving Indonesian families will be excluded. Articles published in languages other than English or Indonesian will not be considered. Research published before 2013 will be excluded to maintain relevance and timeliness. Studies that do not address complementary feeding practices or family dynamics in the context of food choices will be excluded. Additionally, experimental studies, randomized controlled trials, and studies with a primary focus on medical interventions without discussion of family dynamics or complementary feeding practices will not be included in the review.

Data extraction involved systematically reviewing and coding information from selected studies to identify key themes and factors influencing complementary feeding practices. This process included gathering data on cultural beliefs, economic status, parental education levels, and social influences, as well as healthcare access and guidance. Each study's methodology, sample size, and regional focus were also noted to ensure a comprehensive understanding of the family dynamics at play. The extracted data were then analyzed to identify patterns and commonalities across different studies, providing a holistic view of the factors affecting complementary food choices in Indonesia.

## RESULTS

After conducting data screening using inclusion and exclusion criteria, 12 articles were obtained. Based on the data and findings from various studies presented, the exclusion criteria for this descriptive literature review are as follows: Studies that focus on children outside the age range of 6-23 months or do not involve Indonesian families will be excluded. Articles published in languages other than English or Indonesian will not be considered for inclusion. Research published before 2013 will be excluded to ensure the data's relevance and timeliness. Studies that do not address complementary feeding practices or the family dynamics influencing food choices will be excluded from this review. Furthermore, experimental studies, randomized controlled trials, and studies primarily focused on medical interventions without discussing family dynamics or complementary feeding practices will not be included in the scope of this literature review.

**Table 1.** Summary of Studies on Complementary Feeding Practices and Nutritional Outcomes in Indonesian Toddlers Aged 6-24 Months

Authors	Abstract Summary	Methodology	Main findings
(Nurul Suci & aulia azizah, 2022)	The pattern of complementary feeding affects the nutritional status of toddlers aged 6-24 months.	This study conducted a systematic literature review using Boolean search operators and keywords in English and Indonesian from five electronic databases (Scopus, Science Direct, PubMed, Portal Garuda, Google Scholar).	- The main finding is that there is an effect of the pattern of complementary feeding on the nutritional status of toddlers aged 6-24 months.

(Agestika, 2022)	The pattern of complementary feeding affects the incidence of diarrhea in infants.	A systematic review of articles published between 2014-2020 examined factors such as child age, nutritional status, breastfeeding, bottle feeding, hygiene, water supply, and season as potential causes of diarrhea in infants, using four major databases.	Infant diarrhea incidence is linked to factors like age, nutritional status, exclusive breastfeeding, bottle feeding, hygiene practices, water supply, and season, with a relationship between complementary feeding practices.
(Dewey & Adu-Afarwuah, 2008)	Educational interventions and provision of fortified foods can improve growth and micronutrient status in children aged 6-24 months.	The study focuses on studies from 1996-2006, excluding earlier ones for certain interventions, focusing on developing countries, using the "snowball" technique, and obtaining unpublished reports and papers through personal contacts.	Complementary feeding interventions, including education on nutrient-rich animal-source foods, significantly impact child growth, especially in food-insecure populations. Fortification of complementary foods improves iron and vitamin A status, but has little effect on zinc status. However, the effect size is modest.
(Salamung et al., 2020)	Complementary feeding practices, including timing, frequency, diversity, and exclusive breastfeeding, are associated with stunting in children.	The study analyzed studies on complementary feeding and stunting, focusing on timing, frequency, and diversity, using 24-hour dietary recall data, and applied inclusion criteria from 2013-2018.	Stunting in children is linked to timely complementary foods, frequency of food and drink, and diversity. Interventions like optimal nutrition during complementary feeding, exclusive breastfeeding, and deworming tablets can prevent stunting in children aged 0-59 months.
(Panjwani & Heidkamp, 2017)	Complementary feeding interventions have a small but significant impact on linear and ponderal growth of children aged 6-23 months in low- and middle-income countries.	- Systematic review of longitudinal trials comparing complementary feeding interventions (nutrition education/counseling or food supplementation) to a control group in children 6-23 months old - Assessment of study quality - Meta-analysis to generate pooled estimates of the impact on linear growth (LAZ) and ponderal growth (WLZ)	Nutrition education and counseling interventions positively impacted linear growth in food-secure populations, while complementary food supplementation interventions, with or without nutrition education, had a small but significant positive impact on both linear and ponderal growth in food-insecure settings.
(Selva & Krianto Karjoso, 2023)	Local food culture influences improving the nutritional status of toddlers, especially during the stunting prevention phase, in Indonesia.	A systematic review of seven studies published between 2016-2021 on "Stunting," "Local Food," and "Culture" was conducted using PRISMA guidelines and a 6-step selection process. The study	Local food culture influences eating behavior, making local food preparations more acceptable for parents and community groups. It can prevent stunting by increasing toddler weight

		used RCT, quasi-experimental, and mixed methods, analyzing reporting quality and bias risk.	and height after interventions using local food. Local food sources are affordable and easily processed, influencing prevention and control.
(Aisiana et al., 2022)	The paper discusses the use of mobile applications to enhance family participation in nutrition programs for children aged 6-24 months in Indonesia.	The study utilized the PRISMA framework, Joanna Briggs Institute Checklist to conduct a literature search on articles published in Indonesian and English within the last 5 years. The search yielded 1,344 articles, with 18 meeting inclusion criteria.	- Mobile applications were found to increase family knowledge about nutrition and increase family participation in nutrition programs. - Mobile applications had a less significant effect on directly improving children's nutritional status, likely due to other confounding factors.
(MY & Welan, 2024)	Providing complementary food made from local ingredients can help address stunting in Indonesian toddlers.	- Searching the Google Scholar database for articles published between 2017 and 2023 using the keywords "stunting" and "local food" - Reviewing and synthesizing findings from multiple previous studies on the nutritional content of local Indonesian food and its use as complementary food for toddlers and pregnant women	Studies indicate that processed local Indonesian food is nutritious and suitable for children's dietary needs. Regions are increasingly using local food as complementary options for toddlers and pregnant women, with the hope of enhancing children's nutrition sustainably in Indonesia.
(Sudiarti et al., 2019)	The majority of mothers in Indonesia have sufficient knowledge about complementary feeding for children aged 6-24 months.	The study involved 75 mothers with children aged 6-24 months in Kampar District, using a descriptive quantitative research method and questionnaires from Tambang and Bangkinang public health centers.	- The majority (64%) of mothers had sufficient knowledge about complementary feeding for infants aged 6-24 months. - 36% of mothers had moderate knowledge about complementary feeding for infants aged 6-24 months.
(Moa et al., 2022)	Family support is important for mothers to provide proper nutrition and complementary feeding to prevent stunting in children under 2 years old in Indonesia.	This study conducted a literature review on family support and stunting in the first 1000 days of life. Seven journals discussed how family support helps mothers engage in key behaviors like prenatal checkups, exclusive breastfeeding, and complementary foods.	- Mothers who received family support were more likely to attend prenatal care, exclusively breastfeed, and provide appropriate complementary feeding. - Family support included encouragement and practical assistance with the mother's own nutrition, as well as supporting breastfeeding and complementary feeding of the child.

(Anindya & Sudiarti, 2023)	Diverse food consumption is related to reduced stunting in Indonesian infants aged 6-24 months.	This study utilized a literature review methodology, searching national and international databases using keywords "MPASI and Stunting" to find relevant articles published between 2016-2022, in full text, open access, and in English or Indonesian, with exclusion criteria for thesis, dissertation, and research published before 2016.	Food diversity in complementary feeding is crucial for assessing nutritional adequacy and preventing stunting in infants aged 6-23 months. Non-diverse food consumption increases stunting risk, while low food diversity is 16.67 times more likely in infants.
(Zakiyah et al., 2021)	The pattern of complementary feeding to stunting toddlers aged 6-24 months in Indonesia is inadequate, with nutrient intake below recommended levels.	- Descriptive, cross-sectional research design - Sample size of 20 respondents selected through total sampling - Data sources included primary data from questionnaires and secondary data from KIA book notes and food recall - Data analysis used univariate analysis	Toddlers were not getting adequate energy, protein, carbohydrates, fat, and fiber, which is linked to stunting. The timing of complementary feeding was inappropriate, with 55% of toddlers receiving it at the wrong time. The overall pattern of complementary feeding was also inadequate, causing stunting.

## DISCUSSION

The pattern of complementary feeding (CF) significantly impacts the nutritional status of toddlers aged 6-24 months. Systematic reviews indicate that inappropriate CF, such as early or delayed introduction of solid foods and lack of dietary diversity, contributes to malnutrition[31]. Nutritional status in this critical age group is greatly influenced by the type and timing of CF, with children receiving appropriately timed and diverse foods showing better growth outcomes (Nantel & Gingras, 2023). These findings underscore the importance of educating caregivers about optimal CF practices to ensure adequate nutrition during this pivotal developmental stage.

Complementary feeding practices are also closely linked to the incidence of diarrhea in infants (Suyitno et al., 2019). Research indicates that factors such as the child's age, nutritional status, breastfeeding practices, and hygiene can influence the risk of diarrhea (Shrestha et al., 2020). Infants aged 6-11 months are particularly vulnerable during the transition to solid foods if hygiene and nutritional quality are not adequately managed (Choudhury et al., 2019). Thus, promoting proper hygiene and feeding practices is essential to reduce diarrhea incidents, which can further compromise an infant's nutritional status and overall health (Lutter et al., 2021).

Educational interventions combined with the provision of fortified foods can significantly improve growth and micronutrient status in children aged 6-23 months. Studies have shown that educating caregivers about the importance of nutrient-rich foods, especially animal-source foods, and providing fortified complementary foods can lead to improved growth metrics and micronutrient levels, particularly iron and vitamin A (Lanou et al., 2019). However, the effectiveness of these interventions varies, often showing more substantial benefits in food-insecure populations where nutrient deficiencies are more pronounced (Ford et al., 2020).

There is a clear association between complementary feeding practices and the incidence of stunting in children. Proper timing, frequency, and diversity of complementary foods, along with exclusive breastfeeding, are critical factors in preventing stunting (Ali et al., 2021; Saleh et al., 2021). Interventions targeting these practices can significantly reduce stunting rates by ensuring that children receive adequate nutrition during the complementary feeding phase (Dhami et al., 2019; Uwiringiyimana et al., 2019). This highlights the need for comprehensive

nutritional programs that emphasize these aspects to improve children's growth and development outcomes.

Local food culture plays a crucial role in improving the nutritional status of toddlers and preventing stunting, particularly in Indonesia. Utilizing locally available foods, which are often more accepted by the community and cost-effective, can enhance the dietary quality of complementary foods (Andrias et al., 2019). Studies indicate that incorporating local food practices into nutritional interventions can lead to significant improvements in weight and height among toddlers (Dulal et al., 2021). This approach leverages cultural acceptance and availability to address nutritional deficiencies sustainably (Chagwena et al., 2024).

## CONCLUSION

Appropriate complementary feeding (CF) practices play a crucial role in determining the nutritional status, growth, and overall health of children aged 6-24 months in Indonesia. This literature review highlights that improper timing of introducing solid and semi-solid foods and a lack of dietary diversity can lead to malnutrition and other health issues, including diarrhea. The findings underscore the importance of comprehensive and sustainable interventions, such as educating parents and caregivers on proper CF practices, providing fortified foods, and promoting healthy local food cultures. Public health policies and programs should focus on raising awareness and knowledge about the importance of diverse and nutritious CF, improving access to adequate food resources, and encouraging good hygiene practices. By adopting a holistic approach, the nutritional status and development of children in Indonesia can be significantly enhanced during this critical developmental period.

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