JURNAL VOKASI KESEHATAN

The Effects of Early Initiation of Breastfeeding and Exclusive Breastfeeding on Stunting among Children Under Five: A Systematic Review

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ABSTRAK

Stunting masih menjadi masalah kesehatan masyarakat utama di Indonesia dan negara berkembang lainnya. Inisiasi menyusu dini (IMD) dan pemberian ASI eksklusif selama enam bulan pertama kehidupan merupakan dua intervensi yang direkomendasikan untuk mencegah stunting. Tinjauan sistematik ini bertujuan untuk menganalisis secara kritis hubungan antara IMD dan ASI eksklusif dengan kejadian stunting pada anak usia di bawah lima tahun. Penelusuran pustaka dilakukan melalui Semantic Scholar dan basis data relevan hingga April 2024.. Seleksi dan ekstraksi data dilakukan secara independen oleh dua peneliti sesuai panduan PRISMA. Hasil penelitian disajikan secara naratif. Dari 1.500 artikel yang diidentifikasi, sebanyak 1.050 disaring setelah duplikasi dihapus. Setelah penyaringan judul dan abstrak, 80 artikel teks lengkap ditelaah dan 40 studi memenuhi kriteria inklusi. Mayoritas penelitian menemukan efek protektif signifikan dari IMD dan ASI eksklusif terhadap stunting, dengan odds ratio pada kelompok tanpa ASI eksklusif berkisar antara 4,08 hingga 21,0. Keterlambatan IMD juga meningkatkan risiko stunting dengan odds ratio hingga 9,14. Dua meta-analisis mengonfirmasi temuan ini dengan pooled adjusted odds ratio sekitar 0,73 untuk ASI eksklusif. IMD dan ASI eksklusif terbukti menjadi intervensi murah, efektif, dan mudah diimplementasikan untuk menurunkan risiko stunting pada anak balita. Kebijakan nasional dan daerah perlu memperkuat edukasi, dukungan, dan advokasi praktik menyusui terutama di kelompok risiko tinggi.

ABSTRACT

Keywords:

Early Initiation Of Breastfeeding; Exclusive Breastfeeding; Stunting; Children; Systematic Review

This systematic review aims to synthesize and critically appraise the evidence on the association between early initiation of breastfeeding (EIBF) and exclusive breastfeeding (EBF) with the incidence of stunting in children under five years of age. A comprehensive search was conducted through Semantic Scholar and related databases up to April 2024. Selection, data extraction, and methodological quality assessment followed PRISMA guidelines and were conducted independently by two reviewers. Results were synthesized narratively due to heterogeneity of included studies. Of 1,500 articles identified, 1,050 were screened after removal of duplicates. After screening titles and abstracts, 80 full-text articles were assessed, and 40 studies were included in the synthesis. Most studies showed a significant protective effect of both EIBF and EBF against stunting, with odds ratios for stunting in non-EBF children ranging from 4.08 to 21.0. Delayed EIBF increased the risk of stunting with some studies reporting odds ratios up to 9.14. Meta-analyses confirmed this protective

association with pooled adjusted odds ratios for EBF around 0.73. Early initiation and exclusive breastfeeding for the first six months are proven, low-cost, and scalable interventions for reducing stunting risk in children under five.

Introduction

Stunting, or impaired linear growth, affects an estimated 150 million children under five globally, with the highest burden found in low- and middle-income countries (Roza, 2023) (Hartono et al., 2024). In Indonesia, stunting remains a persistent public health challenge with long-term consequences for physical and cognitive development, educational attainment, and adult productivity (Hartono et al., 2024) (Widaryanti & Luthfiyati, 2019). The first 1,000 days of life represent a critical window for stunting prevention, during which optimal infant and young child feeding practices are essential (Widaryanti & Luthfiyati, 2019) (Putri et al., 2020).

Early initiation of breastfeeding (EIBF)—defined as breastfeeding within one hour of birth—and exclusive breastfeeding (EBF) for the first six months are recommended by the WHO and Indonesian Ministry of Health as effective strategies to improve child survival, growth, and development (Putri et al., 2020) (Mardani et al., 2022). EIBF ensures timely intake of colostrum, rich in immune factors and growth modulators, while EBF protects against infection and malnutrition (Mardani et al., 2022) (Saputri & Ermi, 2024).

However, national surveys indicate that coverage of EIBF and EBF remains suboptimal, and many children are still exposed to early supplementation and delayed breastfeeding initiation (Saputri & Ermi, 2024) (Izzah et al., 2022). Despite strong biological plausibility, published studies on the relationship between breastfeeding practices and stunting in Indonesia and other settings have reported variable findings. This systematic review consolidates the latest evidence on EIBF and EBF in relation to stunting in children under five, to inform more effective public health action.

METHODS

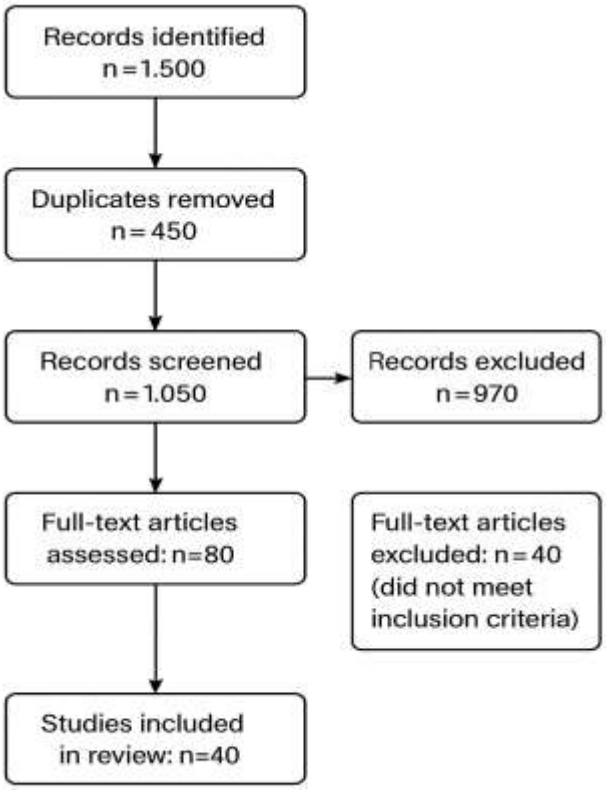
This systematic review was conducted following PRISMA guidelines. Literature searches were performed in Semantic Scholar and relevant databases for studies published up to April 2024. Search terms included “early initiation of breastfeeding”, “exclusive breastfeeding”, “stunting”, and “children under five”. Inclusion criteria: original studies (RCTs, cohort, case-control, cross-sectional) in children under five, reporting EIBF (within one hour) and/or EBF (six months), and stunting (height-for-age z-score <–2 SD). Exclusion criteria: non-original articles, case series, studies not reporting relevant outcomes, or published in languages other than English or Bahasa Indonesia. Two independent reviewers screened titles, abstracts, and full-texts. Discrepancies were resolved by consensus. Data extracted included study design, population, setting, definitions, outcomes, and effect estimates. Risk of bias was assessed using standard tools for each study design. Given heterogeneity, results are presented narratively. The flow of study selection is shown in the PRISMA diagram

RESULTS AND DISCUSSION

Results

A total of 1,500 articles were identified. After 450 duplicates were removed, 1,050 records were screened for relevance, and 970 were excluded based on title and abstract. Eighty full-text articles were assessed, and 40 studies were included in the final review. The PRISMA flow diagram summarizing the selection process is presented below:

Figure 1. PRISMA Flow Diagram of Study Selection



The included studies comprised cross-sectional, cohort, case-control, and two meta-analyses, mostly conducted in Indonesia but also in Southeast Asia and Africa.

Most studies demonstrated a significant protective effect of EIBF and EBF on stunting. Non-EBF children had a 4 to 21 times higher risk of stunting (Hartono et al., 2024) (Mardani et al., 2022) (Saputri & Ermi, 2024). Delayed EIBF increased stunting risk up to ninefold in several studies (Septiannoor Khaira et al., 2022) (Ahmad. et al., 2022) (Wahyuningsih et al., 2021). Two meta-analyses confirmed a protective association (pooled AOR ≈ 0.73) (Putri et al., 2020) (Mardani et al., 2022). Effect modifiers included maternal education, socioeconomic status, and cultural practices (Saputri & Ermi, 2024) (Suryani, 2021). Key barriers were maternal employment, lack of health education, and local beliefs limiting EIBF/EBF (Suryani, 2021) (Septina et al., 2023) (Sundari & Puspowati, 2018). Several studies did not find statistically significant effects, possibly due to small sample sizes or residual confounding (Nurfatimah et al., 2021) (Wahyuningsih et al., 2021). Overall, consistency of findings across diverse settings strengthens the evidence for a causal association.

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Discussion

This systematic review highlights robust and consistent evidence supporting both early initiation and exclusive breastfeeding as protective factors against stunting in children under five (Roza, 2023) (Hartono et al., 2024) (Mardani et al., 2022) (Health Polytechnics et al., 2021). The magnitude of risk reduction is substantial: children not exclusively breastfed or with delayed breastfeeding initiation have a significantly higher likelihood of being stunted (Hartono et al., 2024) (Septiannoor Khaira et al., 2022) (Putri et al., 2020) (Yadika, 2019). Biological plausibility is supported by the fact that EIBF delivers colostrum—rich in immune factors and growth modulators—

that primes the infant's gut and immune system, while exclusive breastfeeding prevents exposure to contaminated water and foods, reducing infection risk and supporting optimal growth (Putri et al., 2020) (Mardani et al., 2022) (Health Polytechnics et al., 2021). The protective effect of EIBF and EBF is consistent across designs and populations, including two meta-analyses (Putri et al., 2020) (Mardani et al., 2022). Although some studies reported null findings, these are likely due to limited power, recall bias, and unmeasured confounders rather than lack of a true association (Wahyuningsih et al., 2021) (Health Polytechnics et al., 2021) (Suryani, 2021). Notably, a cluster-randomized trial from Uganda found no long-term effect, suggesting that the benefit may be context-dependent and strongest where stunting and suboptimal breastfeeding are most prevalent (Health Polytechnics et al., 2021). Socioeconomic status, maternal education, and local beliefs strongly modify the association between breastfeeding and stunting. Mothers with higher education are more likely to practice EIBF and EBF, while those facing poverty, employment constraints, or entrenched traditional beliefs are at increased risk of suboptimal feeding practices and child growth faltering (Sundari & Puspowati, 2018) (Ahmad & Ahmad, 2022) (Lestari et al., 2018) (Nurfatimah et al., 2021). Barriers include lack of maternity protection, inadequate family and health system support, and persistent cultural misconceptions such as discarding colostrum or early complementary feeding (Nurfatimah et al., 2021) (Lestari et al., 2018) (Nurlita sari et al., 2022) (Damanik et al., 2022). Strengths of this review include a comprehensive search, inclusion of meta-analyses, and critical appraisal of context-specific barriers. Limitations are the predominance of observational studies, potential recall and selection bias, and heterogeneity in exposure/outcome definitions. Despite these, the consistency and strength of associations, as well as plausible biological pathways, reinforce the conclusion that EIBF and EBF are essential interventions for stunting prevention (Putri et al., 2020) (Mardani et al., 2022) (Health Polytechnics et al., 2021). Public health programs should prioritize promotion, support, and protection of breastfeeding through multi-level interventions: health worker training, community-based counseling, mass media campaigns, and policies enabling maternity leave and workplace breastfeeding support (Pratama et al., 2019) (Rambu & Ilyas, 2024). Further research should explore scalable strategies for increasing EIBF/EBF, particularly in hard-to-reach and high-risk populations.

CONCLUSION

Early initiation of breastfeeding and exclusive breastfeeding during the first six months are proven, cost-effective, and scalable interventions to reduce stunting risk in children under five. National and local policies should intensify efforts to educate, support, and enable optimal breastfeeding practices as part of comprehensive child nutrition strategies, especially among socioeconomically disadvantaged groups.

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