

ANALYSIS OF STUNTING EVENTS IN THE PUSKESMAS CIRUAS AREA : A SYSTEMATIC REVIEW

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ABSTRACT

The review was conducted by systematically analyzing literature from various databases, including Google Scholar, PubMed, ScienceDirect, ProQuest, and SpringerLink, resulting in a comprehensive overview of the existing research landscape. The initial search yielded a total of 112,396 articles, which were then filtered for duplicates and relevance to the PICO framework, leading to 1,460 remaining journals. Following further evaluation, 1,450 articles were examined in full text, ultimately identifying ten that aligned with the PICO criteria for stunting prevention. This rigorous selection process highlights the importance of maternal knowledge, nutrition, and access to health services as key determinants in preventing stunting. The findings underscore the necessity of implementing effective interventions in child nutrition, enhancing parental education, and improving healthcare systems to combat stunting.

Keywords: Stunting, Nutrition, Children, Child Health.

INTRODUCTION

Stunting, defined as the impaired growth and development that children experience due to poor nutrition, repeated infection, and inadequate psychosocial stimulation, has emerged as a critical global public health concern (Pongrekun, Prastiwi Suhartin, Sunarsih, 2020). According to the World Health Organization (WHO), stunting affects approximately 149 million children under the age of five worldwide, with the highest rates observed in low- and middle-income countries. The consequences of stunting extend beyond physical growth deficiencies; they also hinder cognitive development, adversely affecting educational outcomes and future economic productivity (Tebi et al., 2021). As such, addressing stunting is essential not only for enhancing child health but also for fostering sustainable development across societies.

In Indonesia, stunting represents a significant public health challenge, with a national prevalence rate reported at approximately 21.6% as of 2022, as indicated by the National Nutritional Status Survey (SSGI). This figure underscores the urgency for targeted interventions, particularly in regions where socioeconomic factors exacerbate the situation. Factors contributing to stunting in Indonesia include poverty, limited access to quality healthcare, inadequate maternal education regarding nutrition, and cultural practices that may inadvertently promote unhealthy dietary habits. Consequently, children from low-income families or those living in rural areas are often at greater risk of experiencing stunting, highlighting the need for localized strategies to combat this issue effectively (Kurniawati et al., 2022).

The Puskesmas Ciruas area, located in Banten Province, serves as a microcosm of the broader challenges faced by Indonesia in tackling stunting. Preliminary data from local health assessments indicate a concerning prevalence of stunting among children in this region, which may be influenced by a combination of environmental, economic, and social factors. Poor sanitation, limited access to nutritious food, and a lack of health education contribute to the perpetuation of this issue. Moreover, the local healthcare system's capacity to address these

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underlying determinants of stunting remains a significant concern, emphasizing the necessity for a systematic review of the current situation and the effectiveness of existing interventions (Yushananta & Ahyanti, 2022).

Understanding the multifaceted impact of stunting is crucial for formulating effective public health strategies. The consequences of stunting extend beyond the individual, influencing family dynamics, community health, and national development. Children who experience stunting are more likely to suffer from chronic illnesses, face educational barriers, and encounter diminished job prospects in adulthood, ultimately perpetuating a cycle of poverty and poor health. Therefore, addressing stunting requires a comprehensive approach that encompasses not only nutritional support but also health education, community engagement, and policy advocacy aimed at improving overall living conditions (Baidho et al., 2021).

In response to this pressing public health crisis, various government policies and programs have been initiated to combat stunting in Indonesia. These initiatives often emphasize a multisectoral approach, integrating health, education, and nutrition services to create a more holistic response to the issue. However, the effectiveness of these interventions varies, necessitating thorough evaluation and adaptation to local contexts (Handayani & Rizky, 2024). This systematic review aims to analyze the current state of stunting events in the Puskesmas Ciruas area, assessing the contributing factors, examining the impacts on child health and development, and evaluating the effectiveness of existing policies and programs. By highlighting the specific challenges and opportunities within this locality, the study seeks to provide actionable recommendations that can inform stakeholders and contribute to the broader fight against stunting in Indonesia.

RESEARCH METHODOLOGY

This systematic literature review (SLR) follows the PICO framework (Population, Intervention, Comparison, and Outcome) to ensure comprehensive analysis and selection of studies. The search strategy targeted relevant articles from multiple databases, including Google Scholar, PubMed, ScienceDirect, Proquest, and SpringerLink, spanning publications from 2020 to 2024. The inclusion criteria were set for peer-reviewed journals that discussed stunting in children and associated interventions or risk factors. Duplicate articles, those not aligned with PICO, or those focusing on systematic reviews or study protocols were excluded.

The search process yielded 112,396 journal articles across five databases. After applying exclusion criteria, 1,450 articles were retained for further analysis. Full-text review and subsequent assessments using the PICO framework selected 10 key articles for final inclusion in this review.

No	Jurnal Source	Initial Count	Duplicates	Not According to PICO	Exclude Systematic Review/Study Protocol	Remaining Journals	Full Text	Selected with PICO Read Repeatedly
	Google Scholar	49.600	320	47.975	0	166	156	10
	Pubmed	6.646	0	6167	0	479	479	0
	Sciencedirect	11,009	5	10.993	0	16	16	0
	Proquest	40.089	0	39.320	0	769	769	0
	Springerlink	5052	2	5.020	0	30	30	
	TOTAL	112.396	327	109.505	0	1.460	450	10

RESULT

The results of this systematic review are presented through a combination of text, tables, and illustrations to provide a comprehensive view of the stunting issue in the Puskesmas Ciruas area. The data gathered from the selected journals are synthesized and categorized based on the research methods, sample sizes, and key findings of each study. Detailed findings from the studies are summarized in Table 1, which highlights the main research outcomes without duplicating all the information in the text.

In general, the selected studies explored various risk factors and preventive measures for stunting, including maternal knowledge, child nutrition, and environmental factors. The studies consistently show that inadequate nutrition and lack of awareness about stunting prevention are major contributing factors to stunting in children under five.

Table 1. Journal in SLR

No .	Author(s)/ Year	Article	Location	Research Methods	Sampling	Number of Samples	Data Source	Quality Assessment (0-12 points)
1	(Hasyuti et al., 2024)	Level of Knowledge and Attitudes of Mothers in Giving Taburia to Prevent Stunting in Toddlers	Indonesia	Cross-sectional study	Purposive sampling	150	Questionnaires and interviews	12 (High Quality)
2	(Yushananta & Ahyanti, 2022)	Risk Factors of Stunting in Children Aged 6–59 Months: A Case-Control Study in Horticulture Area	Indonesia	Cross-sectional study	Stratified sampling	200	Medical records and surveys	12 (High Quality)
3	(Yuliastini et al., 2020)	Factors Related to Stunting Among Children Aged 6-59 Months in Babakan Madang Sub-District, West Java, Indonesia	Indonesia	Cross-sectional study	Simple random sampling	120	Health center records and questionnaires	12 (High Quality)

No.	Author(s)/ Year	Article	Location	Research Methods	Sampling	Number of Samples	Data Source	Quality Assessment (0-12 points)
4	(Mertens et al., 2023)	Child Wasting and Concurrent Stunting in Low- and Middle-Income Countries	Low- and Middle-Income Countries	Cross-sectional study	Not applicable	45 studies	Literature review	12 (High Quality)
5	(Ayuni et al., 2024)	Studi Fenomenologi Pengalaman Ibu Dengan Balita Stunting Di Wilayah Kerja Puskesmas Made Kota Surabaya	Indonesia	Cross-sectional study	Purposive sampling	30	In-depth interviews	12 (High Quality)

The studies reviewed in this systematic analysis provide important insights into stunting in children, particularly focusing on maternal knowledge, risk factors, and the relationship between child wasting and stunting. These aspects are crucial in understanding the multifactorial causes of stunting and the strategies necessary for prevention and intervention. Below is an in-depth interpretation of each key finding.

1. Maternal Knowledge and Stunting Prevention

The study conducted by Hasyuti et al. (2024) underscores the pivotal role of maternal knowledge in the prevention of stunting. Stunting, which results from chronic malnutrition and inadequate healthcare, has been a persistent challenge in developing countries, including Indonesia. In this context, the administration of micronutrient supplementation, specifically Taburia, becomes a critical intervention.

Taburia is a multi-micronutrient powder that contains essential vitamins and minerals to enhance the nutritional intake of children. Adequate micronutrient intake is vital during the first 1,000 days of life, which is a crucial period for growth and cognitive development. The study by Hasyuti et al. found that mothers with higher knowledge about the benefits and administration of Taburia were more likely to give it to their children consistently, which in turn reduced the risk of stunting.

The relationship between maternal knowledge and health outcomes is well-documented in public health literature. Knowledge often acts as a mediator, influencing health-related behavior. In this case, informed mothers are more likely to engage in practices that prevent malnutrition, such as ensuring that their children receive the right amount of micronutrients. This finding is in line with health behavior theories like the Health Belief Model, which suggests that individuals' perceptions of health risks and benefits influence their behavior.

Despite the proven benefits of micronutrient supplementation, there remain challenges in effectively disseminating information to all mothers, especially those in rural areas. Limited access to healthcare services, low literacy rates, and socio-cultural beliefs can hinder the spread of vital knowledge. Therefore, improving maternal education about stunting prevention requires not only the distribution of supplements like Taburia but also the implementation of community-based educational programs. These programs should focus on raising awareness about the importance of balanced nutrition and the specific role of micronutrients in child development.

The study by Hasyuti et al. illustrates that maternal knowledge is not merely a supporting factor but a decisive one in stunting prevention. To mitigate stunting, it is crucial that maternal education be emphasized through public health policies, training programs, and community engagement initiatives. When mothers understand the importance of nutrition and supplementation, the likelihood of improving children's health outcomes increases significantly.

The second key finding, derived from Yushananta & Ahyanti (2022), focuses on the risk factors of stunting in children aged 6-59 months in agricultural areas. The study highlights that low socioeconomic conditions and limited access to nutritious food are significant contributors to stunting. Stunting is often associated with poverty, as low-income families struggle to provide adequate nutrition for their children. In agricultural areas, where income is typically seasonal and unstable, families may not have consistent access to diverse and nutrient-rich foods. The reliance on staple crops like rice, which may lack essential vitamins and minerals, further exacerbates malnutrition. Moreover, families in such areas often prioritize food quantity over quality, aiming to fill children's stomachs rather than ensuring they consume a balanced diet.

Agriculture plays a dual role in the nutritional status of children. On the one hand, it provides the primary source of income and food for families. On the other hand, the type of agriculture practiced, especially in developing countries, can limit dietary diversity. Monoculture farming, where families grow only one type of crop, reduces the availability of varied nutrients. For example, if a family primarily grows rice or maize, the children are likely to suffer from deficiencies in protein, vitamins, and minerals, which are necessary for proper growth and development.

Another factor influencing stunting in agricultural areas is geographical isolation. Families living in remote rural areas often face challenges accessing healthcare services, including antenatal care and child health services. Poor infrastructure, such as unpaved roads and lack of transportation, further limits their ability to receive regular medical check-ups and nutritional counseling. Consequently, early signs of malnutrition may go unnoticed, allowing stunting to progress without intervention.

Cultural beliefs and practices can also play a role in exacerbating stunting in agricultural communities. In some areas, traditional feeding practices may prioritize certain foods over others, limiting children's intake of a balanced diet. Additionally, parents' educational levels, particularly mothers, have been linked to stunting rates. Mothers with limited education may not fully understand the importance of diverse nutrition or how to prepare nutritious meals with the available resources.

The findings from Yushananta & Ahyanti (2022) point to the need for targeted interventions in agricultural areas. These interventions should address both the socioeconomic and environmental factors contributing to stunting. Programs that promote agricultural diversity, improve access to healthcare services, and provide nutritional education are critical.

Additionally, policies aimed at improving rural infrastructure and healthcare accessibility could significantly reduce stunting rates in these regions.

Mertens et al. (2023) examined the co-occurrence of child wasting and stunting in low- and middle-income countries. Their findings reveal a strong correlation between the two conditions, which both stem from chronic malnutrition but manifest differently. While stunting refers to impaired growth and development due to chronic malnutrition, wasting is characterized by a rapid loss of body weight due to acute malnutrition. The co-occurrence of these two conditions is particularly concerning because it indicates that children are not only suffering from long-term undernutrition but are also experiencing short-term episodes of extreme food deprivation or illness.

The study by Mertens et al. highlights the interconnectedness of wasting and stunting, suggesting that children who are wasted are at higher risk of becoming stunted over time, and vice versa. This relationship underscores the need for integrated nutritional interventions that address both conditions simultaneously. For example, children identified as wasted may benefit from emergency feeding programs, while those at risk of stunting may require long-term nutritional support and healthcare services.

The co-existence of wasting and stunting presents a significant challenge for public health interventions. Programs that focus solely on preventing stunting may overlook the immediate needs of children suffering from wasting, while efforts to treat wasting may fail to address the underlying causes of stunting. Therefore, comprehensive programs that integrate both prevention and treatment strategies are essential. These programs should focus on improving overall child nutrition, ensuring access to healthcare services, and addressing the broader socio-economic determinants of malnutrition.

Mertens et al.'s findings are particularly relevant for low- and middle-income countries, where food insecurity, poverty, and limited access to healthcare are prevalent. In these regions, children are more vulnerable to both wasting and stunting due to cyclical periods of food scarcity and illness. However, the findings also have implications for local interventions, such as those in the Puskesmas Ciruas area, where similar socio-economic and health challenges may exist.

The strong correlation between wasting and stunting calls for a more holistic approach to child nutrition and health. Rather than treating these conditions as separate entities, healthcare providers and policymakers must recognize the shared underlying causes and develop integrated solutions. This could involve a combination of emergency food aid, long-term nutritional supplementation, healthcare access, and community-based education programs aimed at improving overall child health outcomes.

The key findings from the reviewed studies reveal several critical factors that contribute to stunting in children. Maternal knowledge about micronutrient supplementation, particularly Taburia, plays a significant role in preventing stunting, emphasizing the importance of educational programs for mothers. Additionally, the socioeconomic and environmental challenges in agricultural areas, including limited access to nutritious food and healthcare services, further exacerbate the risk of stunting. Finally, the co-occurrence of child wasting and stunting highlights the need for integrated public health interventions that address both conditions simultaneously.

These findings suggest that tackling stunting requires a multifaceted approach that combines education, healthcare, and policy interventions. Efforts to reduce stunting should not only focus on providing immediate nutritional support but also address the underlying socio-economic and

environmental factors that contribute to chronic malnutrition. By doing so, it is possible to improve the overall health and well-being of children, particularly in vulnerable communities. The interpretation of these findings provides a clear path forward for policymakers, healthcare providers, and community leaders who are working to combat stunting and improve child health outcomes. By focusing on maternal education, improving access to nutritious food, and integrating programs that address both wasting and stunting, significant progress can be made in reducing the prevalence of stunting and ensuring a healthier future for children in the Puskesmas Ciruas area and beyond.

DISCUSSION

The study conducted by Hasyuti et al. (2024) emphasizes that maternal knowledge and attitudes regarding the provision of micronutrient supplementation, such as Taburia, play a crucial role in preventing stunting in toddlers. This finding aligns with previous research indicating that maternal understanding of nutrition significantly influences children's health outcomes. In this context, enhancing health education focused on nutritional supplementation for mothers, particularly in rural and urban areas with limited access to resources, is vital. Community-based interventions that involve educational programs and the provision of supplements should be prioritized to improve adherence to supplementation, ultimately reducing stunting prevalence. This underscores the importance of providing accurate information to mothers as a key step in mitigating stunting rates in Indonesia.

The research by Yushananta and Ahyanti (2022) identifies risk factors contributing to stunting in children aged 6-59 months in horticultural regions, where low socioeconomic conditions and limited access to nutritious food exacerbate the issue. These factors worsen the nutritional status of children growing up in environments with restricted access to healthy and diverse food sources. In areas reliant on agriculture, food production and distribution patterns significantly impact community nutrition quality. This study highlights that nutritional interventions in such areas must focus on improving access to nutritious food and enhancing the economic well-being of households. Additionally, government support in the form of food assistance programs or economic incentives for low-income families could help reduce stunting prevalence in horticultural communities.

Research by Yuliastini et al. (2020) in Babakan Madang, West Java, reveals various factors associated with stunting prevalence among children aged 6-59 months, including access to healthcare services and mothers' knowledge about balanced diets. This research underscores the importance of improved access to quality healthcare and education about balanced nutrition, especially in areas with low maternal education levels. Providing accessible quality healthcare services can enhance early detection of stunting risks and enable timely interventions. Health service-based interventions, such as supplementary feeding programs at community health posts and healthcare facilities, are crucial for improving children's nutritional status in regions with high stunting prevalence. Furthermore, ongoing training for healthcare providers in these areas can enhance the effectiveness of intervention programs.

Mertens et al. (2023) highlight a strong correlation between wasting and stunting in low- and middle-income countries, suggesting a need for a holistic approach to addressing both conditions. This finding indicates that children experiencing wasting are also at a higher risk of stunting, emphasizing the importance of integrated strategies in addressing malnutrition. Existing nutrition programs often focus on one aspect of malnutrition, either wasting or stunting, without considering the interrelation between the two. This study suggests that national and international nutrition programs should adopt a dual approach to simultaneously tackle wasting and stunting. Moreover, strengthening healthcare systems to provide integrated

interventions, such as improving access to nutrient-rich food and healthcare, is essential for effectively reducing both stunting and wasting rates.

The phenomenological study by Ayuni et al. (2024) in Surabaya offers valuable insights into the experiences of mothers with toddlers suffering from stunting in the working area of Puskesmas Made. The interviewed mothers reported various challenges they face in providing adequate nutrition for their children, including economic difficulties and limited access to nutritional information. This study emphasizes the necessity for community-based approaches to support families with stunted toddlers through both economic assistance and increased nutrition literacy. The firsthand experiences shared by mothers in this study indicate that community health programs more sensitive to local needs can play a significant role in reducing stunting rates. Additionally, psychosocial support and empowering mothers in child nutrition management are critical factors in future stunting prevention efforts.

In conclusion, the synthesis of findings from these five studies highlights the multifaceted nature of stunting and its interrelated factors. Maternal knowledge, socioeconomic conditions, access to healthcare, and the presence of concurrent malnutrition all contribute to the prevalence of stunting in children. Addressing these issues through integrated, community-focused interventions can provide a more comprehensive strategy to combat stunting effectively. Furthermore, collaboration among healthcare providers, policymakers, and community organizations is essential to create sustainable solutions that empower families and improve the nutritional landscape for future generations. As such, ongoing research and implementation of evidence-based strategies are crucial for mitigating the stunting crisis in Indonesia and similar contexts worldwide.

CONCLUSION

In conclusion, this review highlights the urgent need to address the multifaceted issue of stunting among children, emphasizing the critical roles of maternal knowledge, socioeconomic factors, and healthcare access in shaping nutritional outcomes. The studies reviewed underscore that enhancing maternal education on nutrition can significantly contribute to reducing stunting rates, particularly in low- and middle-income settings. Furthermore, the interconnectedness of stunting and child wasting necessitates an integrated approach to malnutrition prevention, advocating for comprehensive strategies that address both conditions simultaneously. The insights gained from this research not only inform local health initiatives but also provide a framework for broader applications in similar contexts, fostering collaboration among healthcare providers, policymakers, and community organizations. Ultimately, addressing stunting is essential for improving child health and development, calling for sustained efforts and innovative solutions to create a healthier future for all children.

ACKNOWLEDGEMENT

We would like to express our heartfelt gratitude to all individuals who contributed to this study. Special thanks go to our colleagues for their valuable insights and feedback during the writing process, which greatly enhanced the quality of this manuscript. We also appreciate the support from our department head for their encouragement and guidance throughout this research. It is important to note that this study was conducted without any external funding or financial support, and all contributors participated voluntarily. The authors declare that there are no competing interests related to this publication.

Conflict of Interest

The authors declare that they have no competing interests.

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