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Original Article

PREVENTION OF STUNTING THROUGH STRENGTHENING PARENTING BEHAVIORS AND FAMILY RESILIENCE: SYSTEMATIC REVIEW

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ABSTRACT

Background. Stunting remains one of the most serious public health problems in Indonesia. This condition describes linear growth failure in children due to chronic malnutrition, especially during the first 1000 days of life (the first day of birth), which has a long-term impact on children's physical and cognitive development and future productivity. This study aims to identify various implementations of stunting prevention interventions.
Research Method. Articles were searched using three databases: Web of Science, Google Scholar, and ProQuest. The inclusion criteria for this study were articles published within one year, from 2024 to 2025, with free access. The research method used in this study was a systematic review based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. **Findings.** it was found that stunting prevention in Indonesia is influenced by various multidimensional factors, including parenting, knowledge, behavior, and the social and economic conditions of the family. **Conclusion.** Based on the articles reviewed, Stunting prevention needs to be carried out through a holistic and intersectoral approach, including education, family empowerment, improving the nutritional quality of pregnant women, cadre support, and the use of technology and sustainable food policies.

Keywords: Behavior, Parenting, Stunting Prevention.

BACKGROUND

Stunting remains one of the most serious public health problems in Indonesia. This condition describes linear growth failure in children due to chronic malnutrition, especially during the first 1000 days of life, which has a long-term impact on children's physical and cognitive development and future productivity. According to recent studies, the causes of stunting are multifactorial, involving biological, social, economic, and behavioral aspects. Therefore, a comprehensive and sustainable approach to stunting prevention is needed, including education, family empowerment, nutrition improvement, and improvement of the environment and healthy living behaviors [1].

The study confirms that parenting behavior has a positive relationship with nutrition, sanitation, and family planning knowledge, which shows the importance of the mother's role in supporting child growth and development [2]. Family resilience and nutritional behavior

are significant factors in reducing stunting rates [3], while research showed that maternal psychological factors such as self-efficacy, perceived control, and intention influence stunting prevention behavior. From the perspective of maternal health [4]. Identified prenatal risk factors such as short maternal height and iron deficiency during pregnancy as causes of increased risk of stunting in children

In addition to individual and family factors, social and technological support also play an important role. Research by [5-6] and [7] shows that nutrition promotion and the implementation of clean and healthy living behaviors can increase public awareness of stunting prevention. The role of Posyandu cadres, as revealed in research in Jombang, is at the forefront of educating and monitoring toddler growth. On the other hand, digital innovations such as the early detection of stunting risk application developed, show the potential of technology in accelerating the identification of at-risk cases [8-10]. Socioeconomic factors and food security are also important [5]. found that the welfare of working mothers influences stunting prevention behaviors, while [2] emphasized that food security in agrarian communities contributes significantly to reducing stunting prevalence.

Considering these findings, it can be concluded that stunting prevention must be carried out through a multidimensional approach, involving nutrition, behavior, psychology, social aspects, and technology in an integrated manner. This review of ten articles aims to provide a comprehensive overview of the factors that play a role in preventing stunting in Indonesia, as well as to support efforts to strengthen family- and community-based policies and interventions to reduce the prevalence of stunting in a sustainable manner.

RESEARCH METHOD

The research method used in this study was a scoping review using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method, which consists of four stages, namely identification, screening, eligibility, and final articles. The databases used for article searches were Web Of Science, Google Scholar, dan Pro Quest. The keywords used in searching for this article were compiled based on PICO, which focuses on several key aspects. “stunting” AND “prevention OR prevent” AND “behavior” AND “under five” AND “child”. The inclusion criteria applied in this study consisted of: (1) articles published within one year, from 2024 to 2025, (2) articles written in Indonesian and English, (3) articles that are freely accessible, and (4) articles whose population consists of recipients and/or providers of stunting prevention services. The exclusion criteria applied in the preparation of this study include: (1) articles published before 2024, (2) articles that are

case series, case reports, systematic reviews, and/or meta-analyses, (3) paid articles, (4) articles written in languages other than Indonesian and English, and (5) articles that do not discuss interventions and/or stunting prevention programs. Articles that have been accepted and approved as final articles will be analyzed using descriptive analysis techniques.

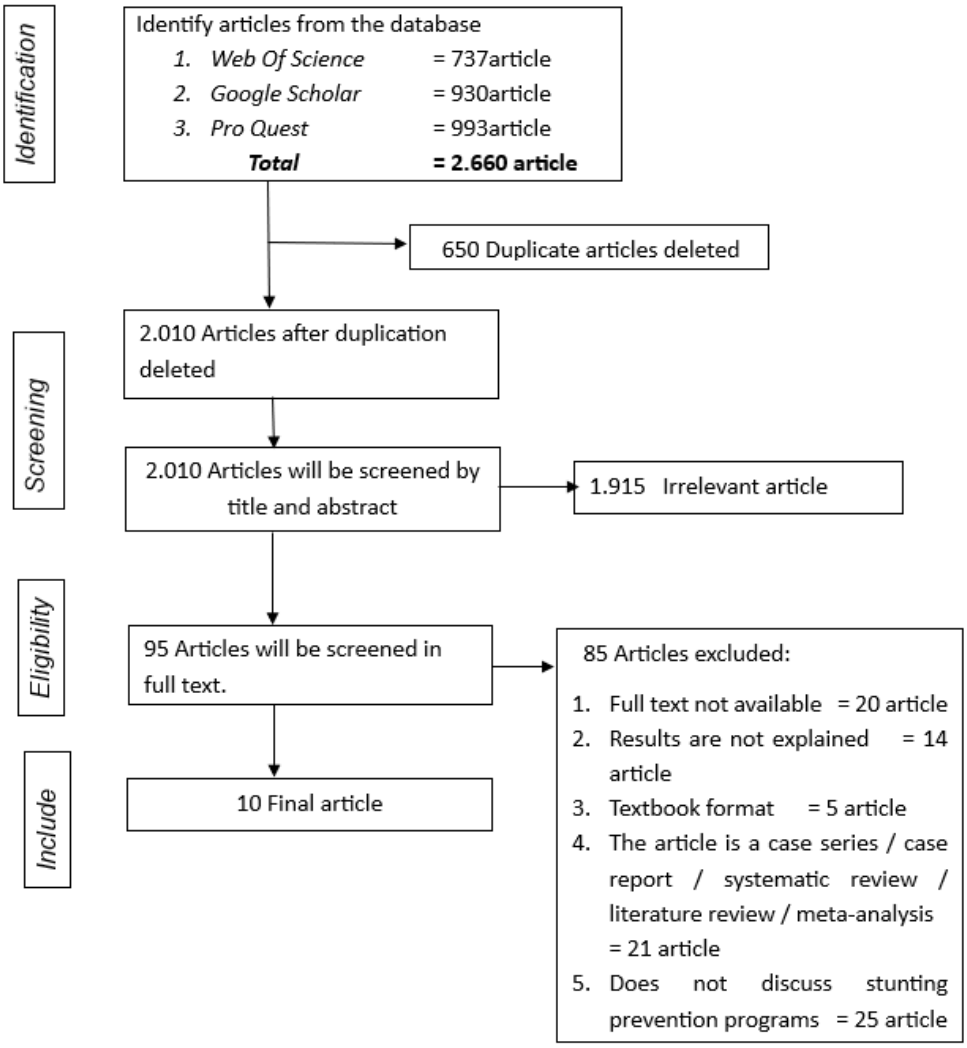

Figure 1. PRISMA method in Systematic Review [11]

FINDINGS

Based on the search results in the databases used (WOS, Google Scholar, Pro Quest) with the specified keywords and inclusion criteria, a total of 10 final articles were obtained for discussion in this study (Table 1), consisting of one case-control design article, one quantitative research article, one quasi-experimental design article, and seven cross-sectional research articles. From reviewing all the articles, several interventions or programs were found to be implemented to prevent and reduce stunting, including health education on nutrition and supplementary feeding for infants and children, therapeutic group therapy,

education and counseling for mothers, cadres, and premarital couples, as well as home-based child care practices.

Table 1. Summary of Journal Search Results (N=10)

No	Article Title & Author (Year)	Research Methodology (Design, Sample, Variables, Instruments, and Analysis)	Research Results
1	Parenting Behaviour And Stunting Prevention In South Sulawesi Province, Indonesia [6]	D: a quantitative S: all families with toddlers in South Sulawesi Province and 260 families as samples V: 1. Independent: Parenting Behavior 2. Dependent: Prevention of Stunting I: questionnaire A: The data were processed and analyzed in three stages: univariate analysis to describe the characteristics of the variables, bivariate analysis using the Chi-square statistical test (with Yates' correction) to examine the relationships between variables, and multivariate analysis using a binary logistic regression model.	showed a positive relationship between parenting behavior and parenting knowledge, environmental sanitation knowledge, nutrition knowledge, parenting attitudes, parenting motivation, family planning, and culture ($p<0.05$)
2	Relationships of Family Resilience and Nutritional Behavior to Prevent Stunting in the District of West Bandung [4]	D: the cross-sectional with a cluster-proportional sampling method. S: mothers with children aged 6-24 months living in West Bandung Regency, totaling 124 respondents. V: 1. Independent: Family resilience 2. Dependent: Nutritional Behavior I: Index Questionnaire A: Statistical analysis using Spearman's rho	Family resilience and nutritional behavior have a significant and positive relationship with the prevention of stunting in West Bandung Regency. Stunting interventions must begin as early as possible and require cooperation from all elements of the government and society.
3	Mother Behavior in Stunting Prevention Based on an Integrated Behavior Model that Adapts the Theory of Planned Behavior:	D: The cross-sectional technique combined with analytical observational research methodology S: A large sample of 280 mothers with children aged two to five years old	The approach of stopping prevention efforts by increasing mothers' intentions, perceptions of control, and self-efficacy regarding

	Model Development [9]	V: 1. Independent: Maternal behavior in preventing stunting 2. Dependent: Intentional Behavior I: questionnaire A: using SEM PLS 3	the importance of instilling prevention in the first 1000 days of a child's life as a crucial phase of child development shows that intentions are directly influenced by perceptions of control and self-efficacy, and this directly influences stunting prevention behavior.
4	Prenatal Risk Factors for Stunting in Children aged 12-24 Months in Central Java, Indonesia [7]	D: a case-control design S: A total of 261 stunted children aged 12-24 months and 261 children without stunting were selected. V: 1. Independent: Prenatal Risk Factors 2. Dependent: Stunting I: structured interviews using structured questionnaires A: Multivariate analysis	Prenatal risk factors for stunting in children aged 12-24 months in Central Java are short maternal height, irregular iron supplement consumption, and inadequate weight gain during pregnancy.
5	The Relationship Between The Role of Cadres and The Behavior of Mothers in Stunting Prevention at Posyandu Toddler Mancar Village Jombang Regency [1]	D: a cross sectional approach S: jumlah sampel 68 responden dan menggunakan teknik total sampling V: 1. Independent: The Role of Cadres 2. Dependent: Mother's Behavior I: questionnaire A: data analysis using Spearman's rank correlation test	There is a relationship between the role of cadres and maternal behavior in preventing stunting at the Mancar Village Toddler Health Center in Jombang District.
6	The Effectiveness Of Stunting Prevention Promotion To Improve Mothers' Knowledge [3]	D: quasi-experimental design with one group pre-posttest S: 78 Respondents V: 1. Independent: Prevention of Stunting 2. Dependent: maternal knowledge I: questionnaire A: paired t-test	Appropriate nutrition promotion plays a role in informing and reminding people about behaviors that prevent stunting.

7	The Relationship Between the Implementation of Clean and Healthy Living Behaviors and the Incidence of Stunting in Toddlers [10]	D: a quantitative study with a cross-sectional design S: 203 people V: 1. Independent: Lifestyle 2. Dependent: Incidence of Stunting I: height measurement in the form of anthropometry and questionnaires A: bivariat uji chi-square	Appropriate nutrition promotion plays a role in informing and reminding people about behaviors that prevent stunting.
8	The accuracy of a novel stunting risk detection application based on nutrition and sanitation indicators in children aged under five years [8]	D: This cross-sectional study S: 316 randomly selected mother-child pairs V: 1. Independent: Accuracy of Stunting Risk Detection Applications 2. Dependent: sanitation I: Stunting Application A: Area Under Curve (AUC) and Receiver Operating Characteristics (ROC) curve methods.	The developed application demonstrates good accuracy and speed in assessing the risk of stunting in children, enabling it to provide appropriate recommendations for preventing stunting. However, the application needs to be improved by simplifying the number of indicators included and conducting retesting on a broader scale.
9	Determinant factors influencing stunting prevention behaviors among working mothers in West Java Province, Indonesia: a cross-sectional study [5]	D: a cross-sectional study S: 225 working mothers V: 1. Independent: Stunting prevention behavior 2. Dependent: working mother I: questionnaire A: chi-square test and logistic regression	Working mothers' welfare and knowledge about stunting prevention influence their stunting prevention behaviors. This study is the first in Indonesia to explore the determinants of stunting prevention behaviors among working mothers.
10	Exploring the Role of Food Security in Stunting Prevention Efforts in the Bondowoso Community, Indonesia [2]	D: a cross-sectional study S: 113 mothers with stunted children (0-59 months) V: 1. Independent: The role of food security 2. Dependent: Prevention Efforts	Food security as a driver for reducing the prevalence of local stunting and providing evidence for community-based nutrition

		I: questionnaire A: Structural Equation Modeling using Partial Least Squares (PLS-SEM).	programs in similar agricultural districts

DISCUSSIONS

Based on a review of ten articles published in 2024–2025, it can be concluded that stunting prevention in Indonesia is influenced by various multidimensional factors, including parenting, knowledge, behavior, and the social and economic conditions of the family. Research by [6], [4], and [9]. shows that the role of mothers in child care is closely related to increased knowledge about nutrition, sanitation, and healthy living behaviors. Psychological factors such as self-efficacy, perceived control, and maternal intentions have also been shown to influence actual behavior in stunting prevention, particularly during the first 1000 days of life, which is a critical phase in child growth and development [12-15].

Other studies highlight the importance of prenatal factors and community social support in stunting prevention efforts [16-18] found that short maternal height, irregular iron supplement consumption, and suboptimal weight gain during pregnancy are major risk factors for stunting[19-23]. These findings emphasize the importance of monitoring the nutrition of pregnant women from early pregnancy. Additionally, research by [4] and a study in Jombang show that family resilience and the role of Posyandu cadres have a significant influence on nutritional behavior and child care. Nutrition promotion and the implementation of clean and healthy living behaviors also play an important role in increasing mothers' awareness, as stated by [3] and [10].

In terms of innovation and socioeconomic support, research by [8] Shows that early detection applications for stunting risk based on nutritional and sanitation indicators have good accuracy and can provide appropriate prevention recommendations. However, these applications still need to be developed to be more efficient and widely implemented. Meanwhile, [5] found that the welfare and knowledge level of working mothers influence their stunting prevention behaviors. [2]. also emphasized that community food security plays a strategic role in reducing the prevalence of stunting in agricultural areas such as Bondowoso. Based on these findings, stunting prevention needs to be carried out through a holistic and intersectoral approach, including education, family empowerment, improving the nutritional quality of pregnant women, cadre support, and the use of technology and sustainable food policies.

This study synthesizes scientific evidence on the role of strengthening parenting behaviors and family resilience in stunting prevention, filling the gap between traditional nutrition intervention studies and family-centered approaches. The results offer an integrated understanding (theory + empirical evidence) that supports multisectoral interventions that prioritize parenting, family relationships, and family resilience as pathways to stunting prevention.

This research limitation, there is a lack of evidence from high-quality RCTs testing the long-term effects of parenting and family resilience interventions on stunting. There is a

need for standardized, cross-culturally validated measures of family resilience and parenting behaviors. Research is needed on causal mechanisms (mediation/moderation) and the cost-effectiveness of interventions. There is a lack of studies in special population groups (e.g., migrant families, conflict-affected areas, and the very poor). So that further research need to answer this research gap and limitation.

CONCLUSION

Based on a review of these ten articles, it is clear that stunting prevention efforts require a comprehensive strategy and collaboration between various parties. Preventive measures should not only focus on nutritional needs but also include improving parenting skills, health education, improving environmental conditions, and strengthening family food security. Maternal involvement, support from Posyandu (Integrated Service Post) cadres, and cross-sector synergy between the government and the community are crucial factors in the success of stunting prevention at the community level. Through appropriate interventions from pregnancy until the child is two years old, it is hoped that a significant and sustainable reduction in stunting rates in Indonesia can be achieved.

REFERENCES

[1] Ana, K. D., Fiddaroini, F. N., & Rozi, F. (2024). The relationship between the role of cadres and the behavior of mothers in stunting prevention at Posyandu Toddler Mancar Village Jombang Regency (Research report). Jurnal STIKES Adi Husada Surabaya.

[2] Gunawan, A., Purnomo, S., & Lestari, H. (2025). Exploring the Role of Food Security in Stunting Prevention Efforts in the Bondowoso Community, Indonesia, 9(1), 40–52.

[3] Intan, R., Safitri, D., & Lestari, M. (2024). The Effectiveness Of Stunting Prevention Promotion To Improve Mothers' Knowledge, 12(2), 88–97.

[4] Laili, N., Sari, M., & Hidayat, R. (2025). Relationships of Family Resilience and Nutritional Behavior to Prevent Stunting in the District of West Bandung 8(2), 101–110.

[5] Neti, S., Ramadhani, R., & Yuliana, T. (2025). Determinant factors influencing stunting prevention behaviors among working mothers in West Java Province, Indonesia: a cross-sectional study,14(2), 120–131.

[6] Rahmawati, A., Putri, D., & Santoso, B. (2025). Parenting Behaviour And Stunting Prevention In South Sulawesi Province, 12(1), 45–56.

[7] Ratnawati, F., Nurhidayah, S., & Pratama, A. (2025). Prenatal Risk Factors for Stunting in Children aged 12-24 Months in Central Java, Indonesia, 7(1), 55–64.

[8] Tria, N., Putra, Y., & Wardani, F. (2025). The accuracy of a novel stunting risk detection application based on nutrition and sanitation indicators in children aged under five years, 6(1), 25–34.

[9] Ulva, R., Hasanah, S., & Widodo, T. (2025). Mother Behavior in Stunting Prevention Based on an Integrated Behavior Model that Adapts the Theory of Planned Behavior: Model Development, 15(3), 210–220.

[10] Uswatun, N., Rahmadani, S., & Fikri, A. (2024). The Relationship Between the Implementation of Clean and Healthy Living Behaviors and the Incidence of Stunting in Toddlers, 10(3), 145–154.

[11] Black, M. M., Walker, S. P., Fernald, L. C. H., Andersen, C. T., et al. (2017). Early childhood development coming of age: Science through the life course. The Lancet, 389(10064), 77–90

[12] Black, R. E., Allen, L. H., Bhutta, Z. A., Caulfield, L. E., et al. (2008). Maternal and child undernutrition: Global and regional exposures and health consequences. The Lancet, 371(9608), 243–260.

[13] Black, R. E., Victora, C. G., Walker, S. P., Bhutta, Z. A., et al. (2013). Maternal and child undernutrition and overweight in low-income and middle-income countries. The Lancet, 382(9890), 427–451.

[14] Danaei, G., Andrews, K. G., Sudfeld, C. R., Fink, G., et al. (2016). Risk factors for childhood stunting in 137 developing countries: A comparative risk assessment analysis. PLOS Medicine, 13(11), e1002164.

[15] de Onis, M., & Branca, F. (2016). Childhood stunting: A global perspective. Maternal & Child Nutrition, 12(S1), 12–26.

[16] Dewey, K. G., & Begum, K. (2011). Long-term consequences of stunting in early life. Maternal & Child Nutrition, 7(S3), 5–18.

[17] Grantham-McGregor, S., Cheung, Y. B., Cueto, S., Glewwe, P., et al. (2007). Developmental potential in the first 5 years for children in developing countries. The Lancet, 369(9555), 60–70.

[18] Prendergast, A. J., & Humphrey, J. H. (2014). The stunting syndrome in developing countries. Paediatrics and International Child Health, 34(4), 250–265.

[19] Sideropoulos, V., Draper, A., Munoz-Chereau, B., Ang, L., & Dockrell, J. E. (2025). Childhood stunting and cognitive development: A meta-analysis. Journal of Global Health, 15, 04257.

[20] Smith, L. C., & Haddad, L. (2015). Reducing child undernutrition: Past drivers and priorities for the post-MDG era. World Development, 68, 180–204.

[21] Victora, C. G., de Onis, M., Hallal, P. C., Blössner, M., & Shrimpton, R. (2008). Worldwide timing of growth faltering: Revisiting implications for interventions. Pediatrics, 125(3), e473–e480.

[22] Walker, S. P., Wachs, T. D., Gardner, J. M., Lozoff, B., et al. (2011). Child development: Risk factors for adverse outcomes in developing countries. The Lancet, 369(9556), 145–157.

[23] Woldeamanuel, T., & Haverkort, B. (2018). Prevalence of stunting and associated factors among preschool children in Ethiopia. BMC Nutrition, 4, 28.