

STUNTING PREVENTION PROGRAM IN INDONESIA: A SYSTEMATIC REVIEW

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Abstract

Background: Stunting is the result of inadequate birth and parenting, this is related to learning and barriers to community involvement. Therefore, the incidence and severity of stunting are indicators used for population assessment and can be useful for tracking the development of children in a population over time.

The aim: This study aims to show the program of stunting prevention in Indonesia.

Methods: By comparing itself to the standards set by the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020, this study was able to show that it met all of the requirements. So, the experts were able to make sure that the study was as up-to-date as it was possible to be. For this search approach, publications that came out between 2013 and 2023 were taken into account. Several different online reference sources, like Pubmed and SagePub, were used to do this. It was decided not to take into account review pieces, works that had already been published, or works that were only half done.

Result: In the PubMed database, the results of our search brought up 810 articles, whereas the results of our search on Sage Pub brought up 186 articles. The results of the search conducted for the last year of 2013 yielded a total 274 articles for PubMed and 73 articles for Sage Pub. In the end, we compiled a total of 20 papers, 3 of which came from PubMed and 17 of which came from Sage Pub. We included five research that met the criteria.

Conclusion: Stunting is a state of nutritional disorder that is influenced by various factors, both regarding the condition of nutritional intake, knowledge of parents or the surrounding environment, as well as the role of government. So that in implementing the stunting prevention program, all concerned parties must be involved, starting from parents, community leaders, to government and non-government circles.

Keyword: Stunting, prevention program of stunting, Indonesia

INTRODUCTION

Stunting is a condition where a child's height for age is more than two standard deviations below the WHO Child Growth Standards median.¹ There are several causes of stunting, namely malnutrition, repeated infections, and inadequate psychosocial stimulation. Stunting is a global health problem and is of concern to many health practitioners.² First, stunting is a serious problem that affects many children around the world. Second, stunting can have long-term impacts on health and self-function, including decreased intelligence, loss of productivity, and decreased worker wages. Third, there is a need for globally agreed definitions and standards for normal human growth. The fourth requirement is agreement on the critical period from pre-pregnancy to the first two years of life. Fifth, stunting is a multisectoral problem that requires a multisectoral response.³

Chronic malnutrition in early childhood causes stunting which can undermine children's mental and physical development, as well as affecting the transmission of malnutrition and bad births between generations to the next generation. Stunting is an indicator of an inadequate birth and care environment, and this is related to learning and barriers to community involvement. Therefore, the prevalence and severity of stunting are useful indicators for population assessment and can be used to track the development of children in a population over time. By 2021, it is estimated that there will be 149.2 million children worldwide who are stunted, or around 22 percent of all five-year-old children. Specifically, 24.4% of children are stunted in Indonesia.⁴

Stunting is the most common form of malnutrition among children, particularly in poor and developing countries. Stunting is a condition of chronic malnutrition characterized by a height of less than -2 standard deviations from the WHO reference for children compared to other children of the same age. Stunting is a linear growth disorder characterized by a lack of nutritional quality in the first 1000 days of life. Stunting not only reflects the problem of short stature, but also reflects malnutrition across generations. If not corrected, there will be persistent malnutrition from time to time.⁵

Toddlers experience stunting problems in the world and Indonesia. Indonesia is a country with the fifth highest prevalence of stunting worldwide. Stunting is a state of malnutrition so that individuals will be below the average growth chart. This condition is one of the contributors to the increase in early childhood deaths due to malnutrition which continues into the terminal phase. Based on the 2013 Basic Health Research, the incidence of stunting in children under five in Indonesia was 37.2% of the total population. Meanwhile, in 2018, Basic Health Research showed a decrease of 30.8% of the population or around 7 million children under five suffered from stunting, to infants under the age of 2 years there were 28.9% or 372,929 people. Although there was a decrease in the incidence of stunting from 2013 to 2018, this shows that the number of stunting in Indonesia still exceeds WHO figures. Stunting can be detected from the age of 2 years. Therefore, before old age, promotion and prevention of risk factors must be carried out to prevent further stunting. These efforts can be started during pregnancy and before the age of 2 years.⁶

The causes of stunting are various and related to one another. Stunting is directly caused by a lack of nutrition, especially carbohydrates and protein, as well as the presence of infectious diseases.⁷ Protein from food plays an important role in a child's body, especially in the growth and development of the brain. The quality of protein in food is assessed from the completeness of the amino acid content (AA). The more complete the AA variation, the higher the value of a protein. There are nine types of AA which are commonly known as essential amino acids (EAAs), which cannot be synthesized by the human body and therefore must be obtained from food. The nine EAAs are histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine.¹

Stunting occurs due to malnutrition or malnutrition, especially in the first 1000 days of life.⁸ Malnutrition at an early age increases infant and child mortality, while stunting is estimated to cause around one million child deaths each year, due to frequent illnesses and poor posture. in adulthood in affected individuals. The bad impact in the short term can also cause disturbances in the brain, intelligence, physical growth disorders, and metabolic disorders in the body. Whereas in the long run, the adverse effects are reduced cognitive ability and learning achievement, decreased immunity which increases susceptibility to disease, high risk of diabetes, obesity, heart and blood vessel disease, cancer, stroke, disability in old age, and poor quality of life. work that leads to low economic productivity.⁹

METHODS

Protocol

By following the rules provided by Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020, the author of this study made certain that it was up to par with the requirements. This is done to ensure that the conclusions drawn from the inquiry are accurate.

Criteria for Eligibility

For the purpose of this literature review, we compare and contrast the program of stunting prevention, especially in Indonesia. It is possible to accomplish this by researching or investigating the program strategy of stunting prevention. As the primary purpose of this piece of writing, demonstrating the relevance of the program that have been identified will take place throughout its entirety.

In order for researchers to take part in the study, it was necessary for them to fulfil the following requirements: 1) The paper needs to be written in English, and it needs to determine the best program of stunting prevention in indonesia. In order for the manuscript to be considered for publication, it needs to meet both of these requirements. 2) The studied papers include several that were published after 2013, but before the time period that this systematic review deems to be relevant. Examples of studies that are not permitted include editorials, submissions that do not have a DOI, review articles that have already been published, and entries that are essentially identical to journal papers that have already been published.

Search Strategy

We used "stunting prevention program in Indonesia"; "Stunting prevention" as keywords. The search for studies to be included in the systematic review was carried out using the PubMed and SagePub databases by inputting the words: (*"stunting"[MeSH Subheading] OR "stunted"[All Fields] OR "stunting prevention"[All Fields] AND ("stunting programme"[All Fields] OR "the program of stunting"[All Fields]) AND ("the program of stunting prevention"[MeSH Terms] OR ("stunting in Indonesia"[All Fields]) OR ("stunted in Indonesia"[All Fields]) AND "prevalence of stunting"[All Fields]) OR ("prevalence of stunted"[All Fields]) OR ("prevalence stunting in Indonesia"[All Fields]) OR ("prevention of stunting"[All Fields]) AND "the prevention program of stunting "[All Fields]) AND ("the prevention program of stunting in Indonesia"[All Fields])*) used in searching the literature.

Data Retrieval

After reading the abstracts and titles of each study, the authors conducted an examination to determine whether the study met the inclusion criteria or not. The author then selects and chooses previous research that will be used as a source for the articles to be made. After looking at a number of different studies, all of which seemed to show the same trend, the following conclusions were drawn. All submissions must be written in English and cannot be viewed anywhere else.

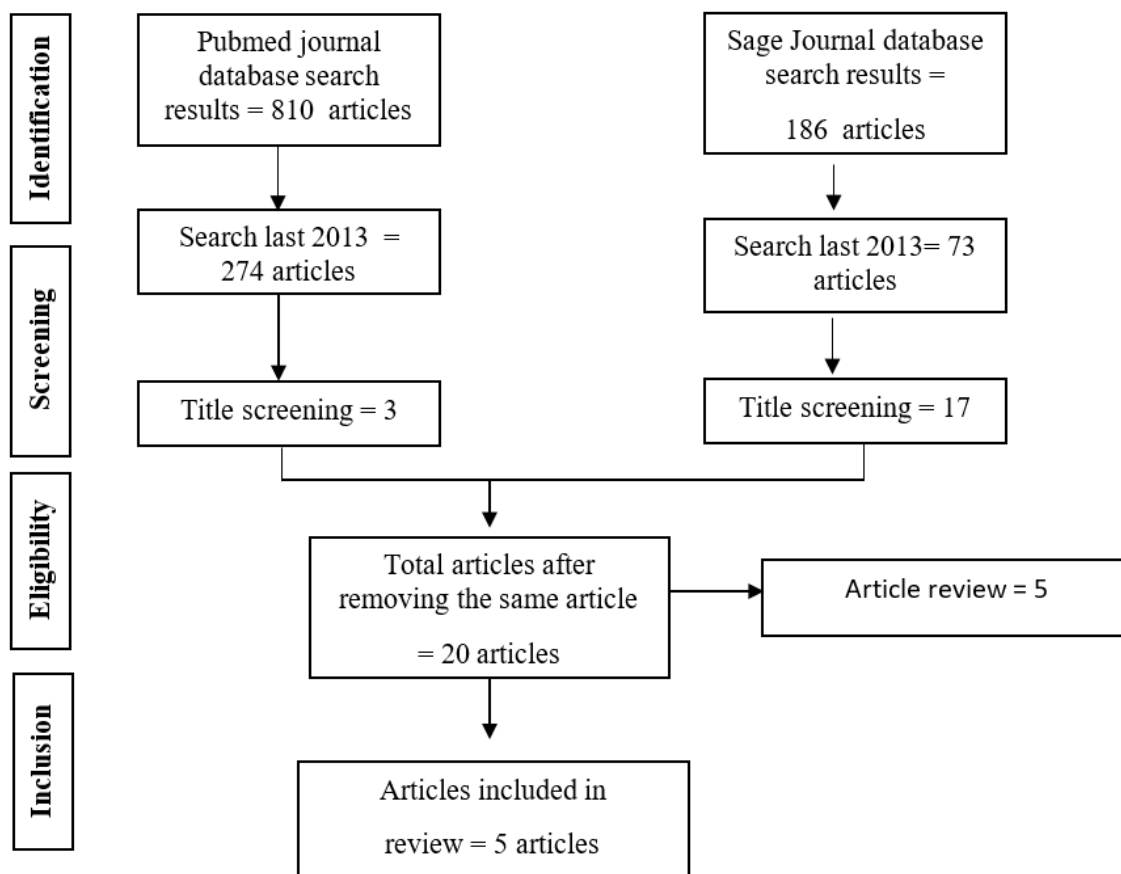


Figure 1. Article search flowchart

Only those papers that were able to satisfy all of the inclusion criteria were taken into consideration for the systematic review. This reduces the number of results to only those that are pertinent to the search. We do not take into consideration the conclusions of any study that does not satisfy our requirements. After this, the findings of the research will be analysed in great detail. The following pieces of information were uncovered as a result of the inquiry that was carried out for the purpose of this study: names, authors, publication dates, location, study activities, and parameters.

Quality Assessment and Data Synthesis

Each author did their own study on the research that was included in the publication's title and abstract before making a decision about which publications to explore further. The next step will be to evaluate all of the articles that are suitable for inclusion in the review because they match the criteria set forth for that purpose in the review. After that, we'll determine which articles to include in the review depending on the findings that we've uncovered. This criteria is utilised in the process of selecting papers for further assessment. In order to simplify the process as much as feasible when selecting papers to evaluate. Which earlier investigations were carried out, and what elements of those studies made it appropriate to include them in the review, are being discussed here.

RESULT

In the PubMed database, the results of our search brought up 810 articles, whereas the results of our search on SagePub brought up 186 articles. The results of the search conducted for the last year of 2013 yielded a total 274 articles for PubMed

and 73 articles for SagePub. In the end, we compiled a total of 20 papers, 3 of which came from PubMed and 17 of which came from SagePub. We included five research that met the criteria.

Wiliyanarti *et al* (2022)¹⁰ showed that culture, family support and mother’s knowledge were factors that affecting behavior of fulfilling nutritional needs among children under the age of 5 years with stunting, 0.279 (OR = 0.279, 95% CI: 0.084-0.920, p = 0.036); (OR = 2.435, 95% CI: 1.270-4.667, p = 0.007); (OR = 4.860, 95% CI: 1.548-15.261, p = 0.724), respectively. Based on the data above, families who have good family support have a risk of 2.435 in fulfilling good nutritional needs, good knowledge has a chance of implementing in fulfilling good nutritional needs of 4.860, and culture has an opportunity to provide less nutrition intervention 0.276 times than those who are not influenced by culture.

Mayfitriana *et al* (2022)¹¹ showed the results of obtaining participants’ answers regarding the perception of growth stunting and its prevention are divided into positive and negative perceptions. From the analysis results, the total mean perception of dentists in the city of Bandung is 91.24, so the perception is said to be positive if the score is 91.24, and it is said to be negative if the score is less than 91.24. Positive and negative perceptions regarding growth stunting and its prevention among dentists in Bandung are almost balanced at 53.77 versus 46.23%.

Table 1. The litelature include in this study

Author	Origin	Method	Sample Size	Result
Wiliyanarti <i>et al.</i> , 2022 ¹⁰	Indonesia	A cross-sectional design	120 respondents	Culture, family support, and knowledge were factors that affecting behavior of fulfilling nutritional needs among children under the age of 5 years with stunting, 0.279 (OR = 0.279, 95% CI: 0.084-0.920, p = 0.036); (OR = 2.435, 95% CI: 1.270-4.667, p = 0.007; OR = 4.860, 95% CI: 1.548-15.261, p = 0.724), respectively.
Mayfitriana <i>et al.</i> , 2022 ¹¹	Indonesia	A descriptive study	106 dentists	Analysis of the findings showed that 80.19% of the participants have good knowledge of growth stunting and its prevention, 16.98% moderate, and 2.83% have poor knowledge. As for the perception category, the number of participants with positive perceptions is 53.77%, while the number of participants with negative perceptions is 46.23%.
Oktaviana <i>et al.</i> , 2022 ⁶	Indonesia	A quasi-experimental design with a pre-test and post-test with a control group	96 respondents	The results show that health education and infant's Therapeutic Group Therapy significantly influence the risky factors in stunting: maternal depression. It can be concluded that there were significant changes in maternal postpartum depression in intervention group 1 and intervention group 2, but in intervention group 2 who got Health Promotion and Therapeutic Group Therapy for Infants there was a bigger and more significant decrease.
Mediani <i>et al.</i> , 2022 ⁹	Indonesia	A cross-sectional approach	363 health cadres	The results showed the majority of health cadres namely 81.27% had good knowledge, which was significantly influenced by education level and marital status with a P-value <0.05. Meanwhile, approximately half of the respondents had moderate motivation with 47.66%, while one-third or 39.12% had high motivation. This motivation was significantly influenced by education level, marital status, and age with p <0.05.
Basri <i>et al.</i> , 2022 ¹²	Indonesia	An experimental randomized control trial-double blind (RCT-DB) study		The highest number of children that had stunted growth after taking the PG by IG and EG extracts were 66 (41.5%), 53 (33.3%) and 40 (25.2%), respectively. The stunted risk factor analysis did not show a significant relationship to the stunted incidence. Furthermore, the consumption and dietary patterns of children were based on only fat consumption which was associated with stunted incidence (p<0.05). The results of multivariate analysis showed that the EG extract was effective in reducing the incidence of stunted growth (p<0.005) and as a protective factor of 0.431 times the incidence of stunted growth (LLUL= 0.246-0.754).

Oktaviana *et al* (2022)⁶ shows that mothers’ postpartum depression in the intervention group 1 after receiving nursing action for health education has decreased from 3.979 (8.84%) to 3.625 (8.05%) with a difference of 0.354. Meanwhile, the analysis results reveal a significant decrease in mothers’ postpartum depression score in the intervention group 1 after receiving health education nursing action (p<0.05). On average, the mothers did not experience postpartum depression. The statistical test results in intervention group 2 show a decrease in the average value of postpartum depression for mothers from 4.958 (11.02%) to 3.062 (6.8%) with a difference of 1.895. The analysis results discover a significant decrease in mothers’ postpartum depression score in intervention group 2 after receiving health education, and therapeutic group therapy for infants (p<0.05); the average mother did not experience postpartum depression. It can be concluded that there were significant changes in maternal postpartum depression in intervention group 1 and intervention group 2, but in intervention group 2 who got Health Promotion and TKT for Infants there was a bigger and more significant decrease. Mediani *et al* (2022)⁹ show that there was no significant relationship between knowledge and the health cadres’ education as indicated by a probability value greater than an error rate of 0.05 or 5%. However, the value obtained generally in West

Java Province was 0.017 which is <0.05 , hence, it was concluded that the overall data had a significant relationship with education, indicating that good knowledge tends to be associated with higher education including Senior High School, and Diploma/Bachelor, while sufficient tends to be associated with low education including, Elementary School. Furthermore, there was no significant relationship between cadre motivation and education as indicated by a probability value greater than an error rate of 0.05 or 5%. A significant relationship was only found in Subang Regency with a p-value of 0.000 which is <0.05 , hence, high motivation tends to be associated with fairly high education such as Senior High School and Diploma/Bachelor, while low tends to be associated with relatively low education, namely Junior High School.

Basri *et al* (2022)¹² shows that the energy intake of stunted children was lower than normal which are 981 ± 455 kcal and 1062 ± 520 kcal. The results showed that their energy intake was not related to the incidence of stunted growth ($p>0.05$). Furthermore, it showed that the highest fat intake in normal children was more compared to stunted children, namely 32 ± 25 mg and 27 ± 18 . Other nutrient intake showed no significant relationship with the incidence of stunted growth ($p>0.05$). Furthermore, all the types of food pattern in children showed no significant relationship to the incidence of stunted growth. Multivariate analysis was conducted to see the effect and significant value of RR (Relative Risk) between the intervention groups and the decrease in the incidence of stunted growth. Furthermore, it also includes other variables that are risk factors for stunted growth incidence. In the intervention group using IG as the reference showed that the EG group had a $p<0.005$. This means that the EG intervention had an effect on reducing the incidence of stunted growth

DISCUSSION

The consequences of malnutrition in five-year-old children have been well documented, including global developmental delays in many areas, such as delayed physical growth, delayed cognitive and social development, and increased risk of contracting a disease. However, there are many obstacles that may become challenges for Indonesian families with low socioeconomic status who live in poverty because they have to handle many demanding jobs and require more effort to pay for health insurance, as well as guarantee family health. Therefore, family doctors need to explore new approaches in health service delivery models that go beyond the scope of practice and improve the quality of life for low-income families.¹³

There are several factors that cause stunting, including direct causes, indirect causes, and basic causes. The direct causes of stunting are malnutrition and communicable diseases. Indirect causes consist of family food security, family parenting and eating patterns, environmental health, and health services. While the basic causes consist of education, employment, poverty, government policies, politics and socio-culture.⁸ The problem of stunting that is not prevented immediately will have a negative impact, including in the short term children will experience impaired physical growth, impaired brain development, decreased intelligence and metabolic disorders. Meanwhile, the long-term impact of stunting is that it can reduce cognitive abilities and learning achievement in children, reduce immunity so that children get sick easily, and are at risk of developing diabetes, obesity, heart disease, stroke, and disabilities in children.^{10,14}

Efforts to improve health service delivery regarding the clinical assessment of malnutrition should be undertaken to help clinicians design interventions that prevent children from contracting communicable diseases. It can also be adapted to understand factors related to childhood nutritional problems. More importantly, an assessment of the epidemiological evidence should be used to reach a consensus on priority interventions in nutrition problems. Therefore, a holistic-comprehensive approach is needed to help doctors develop a more comprehensive assessment of the nutritional status of children under five. The holistic-comprehensive approach refers to the process of using all aspects of biological factors, psychological conditions, and social characteristics (cultural and social issues) to continuously collect information on children's nutritional status, in order to provide feedback and improve disease prevention.¹³

Several countries have succeeded in reducing the prevalence of stunting based on a strong commitment from the government in formulating policies and implementing them, ongoing political commitment, a multi-sectoral approach, organizational arrangements at all levels, and increased access to quality health services.¹⁵

Consumption of multi-micronutrient supplements (MMS) is recommended to reduce or avoid feelings of discomfort after consuming iron and folic acid (IFA) in pregnant women and young women. According to UNICEF, taking MMS tablets not only reduces the potential for unwanted feelings in pregnant women and girls due to small doses of iron (30 mg of iron in MMS is as effective as 60 mg of iron in IFA), but also fulfills various nutritional enhancements. requirements needed during pregnancy to reduce the potential for fetal abnormalities (eg small for gestational age/SGA, premature birth and low birth weight/LBW) and anemia in children under 5 years.²

A lower level of maternal education is associated with a higher risk of stunting, which is consistent with a systematic review study. The mother, as caregiver, has all the decisions regarding healthy feeding practices, including breastfeeding. In addition, higher father's education was associated with protective parenting behaviors, including receipt of vitamin A capsules, complete child immunization, better sanitation, and use of iodized salt. We have to realize that education is very important for Indonesia, just like many other developing countries. Many studies report that a better level of education is a determinant of better health outcomes. Meanwhile, several studies also report poor education as a barrier to achieving better health outcomes.⁸

Government policies to reduce the prevalence of stunting include the Sustainable Development Goals (SDGs). The second goal of SDGs is to end hunger, achieve food security and improve nutrition, and launch sustainable agriculture. The second target of SDGs part A is to end hunger, achieve food security and balanced nutrition, and overcome child stunting. This situation is in line with Indonesia's RPJMN (National Medium Term Development Plan) policy for 2020–2024 which raises one of the points related to stunting, namely accelerating the reduction of stunting by increasing the effectiveness of specific and sensitive nutrition interventions.¹⁶

One of the stunting reduction intervention policies is the establishment of stunting areas, including stunting villages. The stunting village is a village area in the stunting district determined by the government as the focus of integrated stunting intervention targets by several sectors namely, OPD (Regional Apparatus Organizations), NGOs (non-governmental organizations), and community government, by holding a stunting convergence meeting to discuss ways reduce the incidence of stunting by integrating several sectors in a focused effort to reduce stunting.¹⁷

Efforts by health cadres in preventing stunting in children include activities at the puskesmas or home visits. While age, attitude, motivation, knowledge, years of service, incentives, and training are factors that influence the performance of health cadres. Profita stated that knowledge, motivation, and support from various parties were needed to encourage active health cadres at Posyandu. In addition, continuous coaching and rewards increase their active participation.⁹

To achieve optimal stunting reduction targets, health cadres need to improve their roles and functions to empower families and communities in preventing and detecting stunting. In addition, health service providers such as nurses and midwives are advised to review and design appropriate intervention strategies, especially for children under five. This is expected to improve the Healthy Indonesia program at the sub-district and district levels. Meanwhile, to empower family functions in preventing stunting and improving quality of life, parents and families need to provide adequate nutrition for children and maintain good environmental sanitation.⁹

Efforts to accelerate the reduction of stunting are left to district government agencies. In this regard, the reduction in the prevalence of stunting must be used as an indicator of the performance of government agencies. In order for the program to be more convergent, it is necessary to improve communication and coordination between government agencies. In addition, to support stunting prevention programs at the village level, planning and budgeting synchronization assistance is needed. In addition, innovative programs are needed to address the main causes of stunting in each district. Meanwhile, for sensitive and specific nutrition interventions targeting families at risk of stunting, an efficient and focused budget is needed.³

The planning and procurement of anthropometric measuring instruments is expected to meet the standards. In addition, routine antenatal checks during pregnancy also need to be carried out, by giving Fe tablets to pregnant women (at least 90 tablets) and young women. Finally, it is hoped that the actors implementing stunting activities can build a mindset in society that views stunting as a health problem. Concepts like this should be disseminated through continuous KIE (Communication, Information, Education) campaigns at all levels, including at the village level, using various methods and channels.³

CONCLUSION

Stunting is a state of nutritional disorder that is influenced by various factors, both regarding the condition of nutritional intake, knowledge of parents or the surrounding environment, as well as the role of government. So that in implementing the stunting prevention program, all concerned parties must be involved, starting from parents, community leaders, to government and non-government circles.

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