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FACTORS INFLUENCING THE INCIDENCE OF STUNTING IN TODDLERS IN DEVELOPING COUNTRIES: LITERATURE REVIEW

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ABSTRACT

The number of children who are underweight for their age is the first of six goals set by the 2025 Global Nutrition Targets. This is also an important step in achieving SDG 2, which aims to end world hunger. Stunting is a linear growth disorder brought on by chronic malnutrition. Undernourishment contributes to the global death toll among children under the age of five. The objective is to identify the factors that contribute to under-five shortness in developing nations. The researchers used a literature review approach, reading selected publications written in Indonesian and English on the topics of "stunting in toddlers," "factors that cause stunting in toddlers in developing countries," and "risk factors for stunting in Asia." The search that led to the selection of the articles evaluated in this literature review was conducted using the PRISMA method. A birth weight of less than 2,500 grams, receiving additional meals, a mother's lack of education, a low household income, and poor sanitation were all found to increase the risk of a child developing stunted growth in early childhood. Low birth weight (LBW), maternal education, household income, and the lack of access to proper sanitation and hygiene were all found to be significant risk factors for stunting in this research of toddlers.

Keyword : Developing Countries and Asia, Risk Factor, Stunting, Toddlers

Introduction

Several countries around the world, including Indonesia, have a problem with toddlers not reaching their full height and weight potential. Many nations in Oceania (41.4%), The Region of Central Africa (36.4%), East Africa (32.6%), West Africa (30.9%), South Asia (30.7%), Southeast Asia (27.2%), and South Africa (23.2%) exhibit stunting rates that surpass the World Health Organization's desired target of 20%..[1] The National Strategy to Accelerate Stunting Reduction in Indonesia involves multiple stakeholders, including the government, corporate sector, academia, society, philanthropy, and the mass media. The issue of stunting in Indonesia has garnered significant attention from the President. This goal is more aggressive than the one established by Bappenas, which is to lower the prevalence rate of stunting by 19% by 2024. The president's goal is

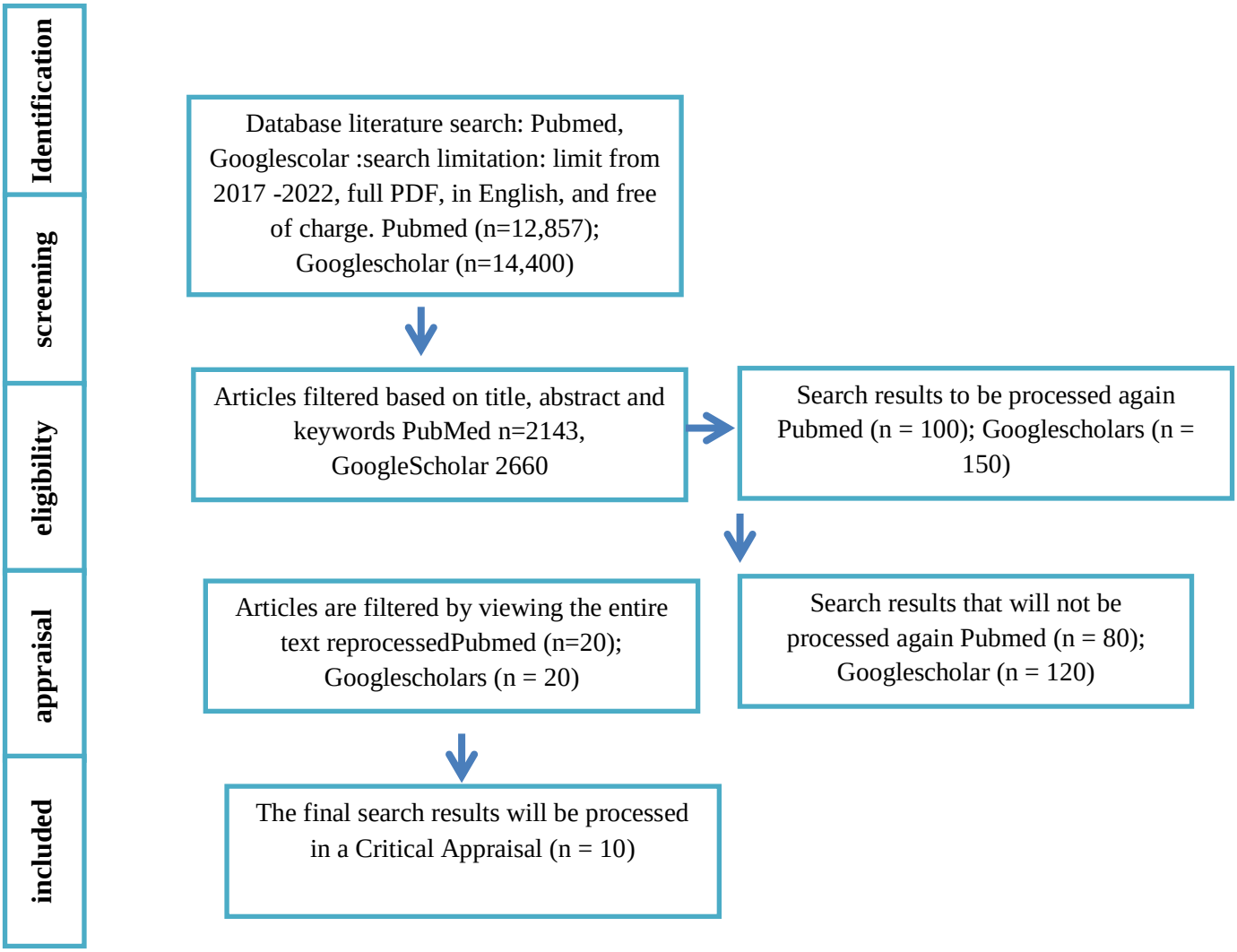
to reduce the rate of stunting by as much as 14% by 2024. The goal for Indonesia in 2024 is to have 14% of children under the age of five and 7.0% of children stunted. The percentage of children in the United States who are short for their age is projected to go down by 3.3 percentage points, from 27.7 percent in 2019 to 24.4 percent in 2021.[23]

Children under the age of five who are significantly shorter than average for their age are deemed to be stunted by the World Health Organization (WHO). Multiple studies have found that heredity accounts for only 15% of the causes of low IQ and subsequent stunting. Instead, the condition's severity is determined mostly by characteristics such as children's nutritional issues, their levels of growth hormone, and the frequency with which they experience repeated diseases.[4] In the short term, The child's immune system will weaken, making them worse in the near term. The exposure will hinder the child's cognitive and motor development over time. This case will harm Indonesia's future human resources if nothing is done. Because of this, Indonesia must invest in its people's nutrition.[5].

Stunting lowers IQ and school attentiveness for one year, Birth weight, length, gestational age, and mother's upbringing affect stunting. Low-birth-weight kids might result from chronic energy shortage or anemia throughout pregnancy. Researchers believe that Indonesia's high percentage of LBW is to blame for the country's high rate of stunting.[6] The Indonesian government has made it a priority to end childhood malnutrition by implementing a plan known as the 5 (five) Pillars of Stunting Prevention.[7] These pillars include: Commitment and vision on the part of leadership; national campaigns and communication of behavior change; convergence, coordination, and consolidation of central, regional, and village initiatives; food security and nutrition; monitoring and evaluation. The implementation of this pillar and the associated convergence action is the responsibility of the local governments that are located in Indonesia's stunting locus regions.

Methods

Data were obtained from the Prisma electronic database using Google Scholar, PubMed. Key words were written in the Google Scholar database, 14,400 and PubMed found 12,857 articles. The researchers chose the articles themselves according to the title and abstract. Inclusion criteria: Articles in Indonesian and English with names and content appropriate for use with children aged 1-5 years old as respondents, research articles published in 2017-2022. Exclusion criteria: articles that do not have a complete structure, article reviews, articles that do not discuss stunting children. The final search results that will be processed in the Critical Appraisal are 10 articles.



Figur 1. PRISMA-ScR Flow chart

Results and Discussion

Each of the 10 articles were selected to be read carefully from the abstract, objectives, data analysis from the researcher's initial questions to collect information about factors that influence stunting incidence and stunting prevention in infants and toddlers 1-5 years.[8–17]

Table 1. Studies Included in this Review

No	Name of Author	Country	Objective	Results
1.	Akombi BJ, et al 2017	Nigeria	Under-five children in Nigeria were analyzed for 11652 risk factors associated with stunting and severe stunting.	Stunting and severe stunting are 29% in Nigeria, therefore policy solutions should focus on poverty reduction, nourishment for women and children, feeding of children, and sanitation in the home.
2.	Akotom Ananah, Et al 2017	Madagaskar	Research stunted growth factors using the UNICEF malnutrition framework.	Girls are stunted less than boys, but the risk rises with age. Increased maternal height increases stunting risk. Children in iodized salt households (>15 ppm) are less likely to stunt. Urban kids are less prone to stunting
3.	Beal T, Et al 2018	Indonesia	Zero Hunger's second Continuous Development	Non-exclusive breastfeeding for 6 months, poor family socioeconomic status, healthy deliveries, small birth weight, low height, and maternal health. Children from households with poor latrines and untreated water are also at danger. Social variables, particularly poor health care and rural living, have been associated to child stunting.
4.	Khrisna A, Et al 2019	South Asia	Investigate inequalities in stunting caused by factors at the individual, caregiver, and household levels (poor dietary diversity, low maternal education, and family poverty) across South Asia.	Regardless of the form of loss, socioeconomic adversity is connected with an increased risk of stunting. Stunting is more likely in poor children with inadequate meals and mothers with low education. The disproportionate impact of stunting suffered by the most disadvantaged children, as well as the widening socioeconomic

				inequality, is a source of worry in nations with a high prevalence of stunting.
5.	Kang Y, Kim J, Et al 2019	Myanmar	Analyze the factors that put children aged 0–59 months at risk for having short stature, wasting, and being underweight.	Current pregnancy, maternal height <145 cm, home delivery, tiny birth size reported by mother, and older age (ref: 0-5 months) suggest stunting and underweight. Birth size above average prevents stunting, wasting, and underweight. Wasteful mothers have a BMI <18.5 kg m-2. Lower wealth, maternal non-agricultural work, and male children solely indicate stunting. Wasted children are younger and have not received vitamin A in 6 months.
6.	Nugraheni D, Et al 2020	Indonesia	To determine of the relationship between history of early initiation of breastfeeding (IMD), history of exclusive breastfeeding, history of energy intake, and history of protein intake with the incidence of stunting at the age of 6 – 24 months in Central Java province.	Factors in the incidence of stunting in Central Java province are energy intake and a history of exclusive breastfeeding
7.	Budhatoki SS, Et al 2020	Nepal	To assess the risk factors for stunting at the time of the four surveys	Babies born to poor families have a higher risk of stunting than babies born to rich families. Families living in hilly areas have a smaller risk of stunting compared to families living on plains. Babies born to mothers who are not educated have a higher risk of stunting than those born to mothers who are educated
8.	Wrigth CM Et, al 2021	Malawi, Pakistan and South Africa	To describe the RR and the proportion of mortality associated with wasting and stunting and the pathways in and out of these nutritional statuses	Wasting and stunting greatly increase the risk of death, especially in very young infants, but more deaths overall are associated with stunting. Most stunting appears to be

				of intrauterine origin or appears in children without prior wasting. Stunting and wasting are alternative responses to nutritional restrictions, or stunting also has other non-nutritional causes.
9.	Muche A Dewaw, Et al 2021	Eithopia	To identify the determinants of severe stunting in young children in Ethiopia	The rate of severe stunting in children is still high with regional variations in Ethiopia. Child age, gender, mother's height, age, education and household wealth index and administrative area are significantly related factors with severe stunting in Ethiopia.
10	Choudry MRK, Et al 2021	Bangladesh	to assess a 12-to-24-month-old actor's stunting risk	The majority of youngsters had intakes that are below the recommended levels for calories, carbohydrates, fats, and proteins respectively. LAZ at birth, children living in households with a low asset index are more likely to be stunted than children living in families with an average asset index, boys are more likely to be stunted than girls, and children at 18 months have a greater risk of being stunted than children aged 12 months.

Lack of energy intake or meals comprising carbohydrates, lipids, and proteins, as well as a history of exclusive nursing, are factors that influence the occurrence of stunting. Toddlers who do not obtain enough energy are more likely to suffer from stunting because the energy they get from food sources contains the energy required for children's growth and development. The anti-infection properties of breast milk explain how exclusive breastfeeding affects stunting. Because babies are more prone to infectious diseases including diarrhea and respiratory infections, not nursing and given food or formula too early can raise stunting risk. So sick newborns hinder children's growth and development.[18]

Health conditions at birth, less birth weight and less birth length, and low maternal height and health. The health of newborns is greatly influenced by the health of the mother, the nutrition of the fetus in the womb all depends on the mother's nutrition through the placenta. So that if there are conditions that affect the mother's health, it indirectly affects the health of the fetus in the womb. When a baby is born with unhealthy conditions it will also greatly affect the growth of the next baby. Babies who are not healthy may also have an impaired ability to digest food which results in a risk of growth disorders and stunting.[19]

Children from households with inadequate latrines and untreated drinking water are also at higher risk. Poor sanitation causes health problems for families or children, in food processing it also makes food unhygienic. Food that is not clean is likely to contain bacteria or viruses that can interfere with the health of children and families. Societal and societal factors in particular, poor access to health care and living in rural areas. Communities far from health facilities are very vulnerable to delays in assistance when health problems occur. Which resulted in the child being handled late and was fatal and disrupted growth. Factors in rural areas are also far from the nutritious food sources that children need. Especially in rural areas where the land is not fertile. And incomplete availability of complete nutritious food.

Women who are currently pregnant, have a maternal height of less than 145 cm, plan to give birth at home, and are older. One of the most common risk factors for wasting in mothers is a body mass index that is less than 18.5 kg. Women who have TB had a lower risk of complications during childbirth that are connected with pelvic size. If a woman is malnourished or has a low body mass index (BMI), this is another sign that the mother is ill or malnourished, which might indirectly impair the coverage of child nutrition. A lower socioeconomic status and the mother's participation in labor outside of the agricultural sector. The age of the child, the gender of the child, the mother's height, age, and education, as well as the household wealth index and the administrative region. Poor newborns have a higher stunting risk than wealthier babies. Hilly families are less likely to stunt than plains households. Uneducated mothers have a higher risk of stunting than educated mothers. Children in iodized salt (>15 ppm) households are less likely to stunt. Urban kids are less likely to be stunted. Stunting is also linked to residence.[20]

Conclusion

Getting stuck in poor nations The risk of stunting in kids is higher the lower the baby's birth weight (LBW), the less educated the mother is, the less money the family has, and the less clean the home is.

References

1. World Health Organization. Strategic Guidance on Accelerating Action for Adolescent Health in South-east Asia (2018-2022). 2022. p 103.
2. World Bank TWB. Prevalence of stunting, height for age. 2021;
3. UNICEF. Nutrition, for every child UNICEF nutrition strategy 2020–2030. In: UNICEF publications. 2020. p. 1–98.
4. Kesehatan Indonesia. Profil Kesehatan Indonesia. 2019. p 1–497.
5. Soediono B. INFO DATIN KEMENKES RI Kondisi Pencapaian Program Kesehatan Anak Indonesia. In: Journal of Chemical Information and Modeling. 2018. p. 160.
6. Basri N, Sididi M. FAKTOR YANG BERHUBUNGAN DENGAN KEJADIAN STUNTING Article history : Received : 20 Agustus 2020 Prevalensi status gizi balita stunting di Provinsi Sulawesi Barat berdasarkan TB / U (Tinggi Badan. Wind public Heal. 2021;01(05):417–26.
7. Khoirunisak N, Wulanjari D. Penanganan Stunting Dan Aki AKB Era Pandemi Covid-19 Dengan 3M Di Desa Trewung Kecamatan Grati Kabupaten Pasuruan. J Abdi Masy Indones. 2021;1(1):83–90.
8. Chowdhury MRK, Khan HTA, Rashid M, Kabir R, Islam S, Shariful Islam M, et al. Differences in risk factors associated with single and multiple concurrent forms of undernutrition (stunting, wasting or underweight) among children under 5 in Bangladesh: A nationally representative cross-sectional study. BMJ Open. 2021;11(12):1–16.
9. Beal T, Tumilowicz A, Sutrisna A, Izwardy D, Neufeld LM. A review of child stunting determinants in Indonesia. Matern Child Nutr. 2018;14(4):1–10.
10. Kang Y, Kim J. Risk factors for undernutrition among children 0–59 months of age in Myanmar. Matern Child Nutr. 2019;15(4).
11. Krishna A, Mejía-Guevara I, McGovern M, Aguayo VM, Subramanian S V. Trends in inequalities in child stunting in South Asia. Matern Child Nutr. 2018;14(July 2017):1–12.
12. Rakotomanana H, Gates GE, Hildebrand D, Stoecker BJ. Determinants of stunting in children under 5 years in Madagascar. Matern Child Nutr. 2017;13(4).
13. Nugraheni D, Nuryanto N, Wijayanti HS, Panunggal B, Syauqy A. Asi Eksklusif Dan Asupan Energi Berhubungan Dengan Kejadian Stunting Pada Usia 6 – 24 Bulan Di Jawa Tengah. J Nutr Coll. 2020;9(2):106–13.
14. Muche A, Dewau R. Severe stunting and its associated factors among children aged 6–59 months in Ethiopia; multilevel ordinal logistic regression model. Ital J Pediatr. 2021;47(1):1–10.
15. Budhathoki SS, Bhandari A, Gurung R, Gurung A, Kc A. Stunting Among Under 5-Year-Olds in Nepal: Trends and Risk Factors. Matern Child Health J [Internet]. 2020;24(s1):39–

47. Available from: https://doi.org/10.1007/s10995-019-02817-1

16. Wright CM, MacPherson J, Bland R, Ashorn P, Zaman S, Ho FK. Wasting and Stunting in Infants and Young Children as Risk Factors for Subsequent Stunting or Mortality: Longitudinal Analysis of Data from Malawi, South Africa, and Pakistan. J Nutr. 2021;151(7):2022–8.
17. Akombi BJ, Agho KE, Hall JJ, Merom D, Astell-Burt T, Renzaho AMN. Stunting and severe stunting among children under-5 years in Nigeria: A multilevel analysis. BMC Pediatr [Internet]. 2017;17(1):1–16. Available from: http://dx.doi.org/10.1186/s12887-016-0770-z
18. Wardani DWKK, Eviyani Margaretha Manungkalit. Analysis of Factors Related to Stunting Among Children Aged 6-24 Months in Central Jakarta. Embrio. 2022 Nov 4;14(2):238–49.
19. Zai T, Girsang E, Nasution SLR, Ginting CN. Prevalence and Determinants of Stunting Incidence in Toddlers. J Aisyah J Ilmu Kesehat. 2022 May 22;7(2).
20. Wiwid Andari TS, BAP. Tinggi Badan Ibu Sebagai Faktor Risiko Stunting Pada Anak Usia 24-59 Bulan Di Kecamatan Pleret Dan Kecamatan Pajangan, Kabupaten Bantul, Yogyakarta. J Nutr Coll [Internet]. 2020 [cited 2023 Mar 9];9(4):235–40. Available from: https://ejournal3.undip.ac.id/index.php/jnc/article/view/26992