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Literature Review: Factors Risks That Influence the Incidence of Stunting

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ABSTRACT

Introduction: Stunting is associated with impaired growth and development in children. In the short term, it can cause problems such as: an upward trend in the morbidity and mortality rate of children, decreased intelligence, motor disorders, increased spending on health, and increased costs for health care and disease treatment. Meanwhile, in the long term, they include decreased height in adult children, decreased reproductive health, low activity at school, less potential learning capacity, and low work capacity and productivity. **Objective:** The purpose of this research is to review the literature, articles, and results documents of research on factors that influence the incidence of stunting. **Method:** The method used in writing this article is a review of the results of a study the research on factors that influence the incidence of stunting. The type of data in this literature review study were obtained by tracing scientific research articles from 2022-2024 using a data base such as Pubmed, google schoolar. **Result:** Many kinds of the risks to related the stunting. There are associated with stunting, namely residence, age of mother, mother's education, mother's occupation, economic status, child's age, gender, EBFI, having no access to safe drinking water, not proper sanitation, and poor maternal hygiene practices. The other the risks to related the stunting were marital status, before pregnancy, during pregnancy, postnatal, infectious disease factors and socia-demographic factors. **Conclusion:** This review concluced that average risks to related the stunting were maternal age, maternal education, recidence, employement, child's age, gender, economic status.

Keywords: factors, risks, stunting

Introduction

Stunting is a condition in which children have a low height for their age. Stunted toddlers have a low height for their age, reflecting nutritional deficiencies (long-term malnutrition) and poor health, which impact nerve cell maturity. Stunting is a nutritional problem worldwide, especially in poor and developing countries. Stunting in toddlers is a growth failure due to the accumulation of nutritional insufficiency that lasts from pregnancy to 24 months. Many factors cause the high incidence of stunting (Kusumawardani et al., 2023).

Stunting, a chronic nutritional ailment leading to inadequate height growth in children, is a significant concern in developing nations due to its potential impact on the quality of a country's human resources. Data from the World Health Organization (WHO) in 2021 shows that approximately 22%, or roughly 149.2 million toddlers worldwide, have experienced stunting. The 2021 Indonesian Nutrition Status Survey by the Ministry of Health indicates that the prevalence of stunting in Indonesia is 25.2% in 2022, exceeding the WHO benchmark of 20%, and the government aims to reduce it to 14% by 2024 (Suyanto et al., 2024).

Stunting is associated with impaired growth and development in children. In the short term, it can cause problems such as: an upward trend in the morbidity and mortality rate of children, decreased intelligence, motor disorders, increased spending on health, and increased costs for health care and disease treatment. Meanwhile, in the long term, they include decreased height in adult children, decreased reproductive health, low activity at school, less potential learning capacity, and low work capacity and productivity (World Health Organization, 2023).

Children affected by stunting face a 3.6 times higher risk of cognitive impairment compared to non-stunted children. Increasing nutritional intake for pregnant women and toddlers is a crucial step in stunting prevention (Mustakim et al., 2022). Immediate consequences of stunting can lead to brain disorders, reduced intelligence, compromised physical growth, and metabolic anomalies. Long-term impact includes diminished cognitive functions, learning deficits, weakened immunity, heightened disease susceptibility, elevated risks of diabetes, obesity, cardiovascular issues, cancer, stroke, disability in later life, and economic productivity decline (Mediani, 2022).

Several studies have demonstrated a range of factors related to stunting the child's age (months), gender, the number of meals the family eats per day, and family income related to the level of family welfare. Family income is associated with the type of work of the parents, as well as the location where they live, which is related to poor access to health care. In rural areas, there are limited health facilities. Stunting increases in households with many family members, and the number of check-ups during pregnancy is less than four visits. Stunting is also affected by poor environmental sanitation, low mother education, length of delivery, premature delivery, and inclusive breastfeeding (Kusumawardani et al., 2023).

Stunting can start during pregnancy, and the role of a mother also determines the nutritional status of children under five children after birth. Previous studies have provided insight into the relationships between a mother's health, nutrition, and sociodemography and the incidence of stunting in children under five. The cultural context of Asian countries, including Indonesia, dictates that domestic responsibility and child care rely on mothers. In some low-income families, mothers are also forced to share the responsibility of earning a living by working apart from being responsible for domestic affairs. Consequently, the availability of time and attention for childcare is reduced. Thus, the condition of mothers of children under five also being workers can become a particular problem for children's growth and nutritional status (Laksono et al., 2022).

Risk factors for stunting come from mother, child, as well as environmental and family economic factors. The need for integrated and multisectoral programs to increase family income, access to proper home sanitation, maternal education on pregnancy and nutrition and exclusive breastfeeding to reduce the incidence of stunting (Agussalim et al., 2024).

Objective

Based on the researcher's background, interested in studying literature, articles, and document results about factors risks that influence the incidence of stunting.

Method

The method used in writing this article is a review of the results study which related with factors risks that influence the incidence of stunting. Literature review is research that critically examines or reviews knowledge, ideas, or findings contained in the body of academic-oriented literature (academic- oriented literature). The method used in writing this article is review (reviews). Which data type used is data secondary. Source data in literature research this review obtained through searching scientific research articles from 2022 to 2024 using the google scholar database, pubmed direct as much 5 article.

Method analysis which used analysis content journal document. This study uses online research journals obtained through search sites journal trusted with criteria inclusion as following:

1. Journals study on line about factors risks that influence the incidence of stunting.
2. Journal study on line which used is at in prone to time period 5 yearfinal.
3. Journals study on line which classy national and international.
4. There is number ISSN (*International standard Serial number*) good in version printas well as electronics.
5. There is DOI (*Digital Object Identifiers*) in journal study.

Journals study obtained through site search journal which trusted that is PUBMED and science direct.

Result

Five studies wich analyzed in literature reviews this form factors risks that influence the incidence of stunting.

Table 1. Analysis of Literature Review Result

Author	Title	Sample	Method	Result
1. Ashar, et al (2024)	Factors Related to Stunting in Children Under 2 years Old in the Papua, Indonesia	A multi-stage cluster random sampling technique was employed in the survey to gather a weighted sample of 2,937 children under the age of 2.	The survey is a cross-sectional study that was carried out in January-December 2021 by the Ministry of Health of the Republic of Indonesia in Indonesia.	Stunting is more common among children in Papua's rural areas than in urban (AOR 1.168, 95% CI, 1.128-1.209). Stunting is more common in children who mother do not work than in mothers who do (AOR 1.174, 95% CI, 1.142- 1.207). Stunting is more common in children aged 12-23 months compared to children <12 months (AOR 3.381, 95% CI,

				3.291-3.474). Compared to girls, boys are more likely to become stunted (AOR 1.348, 95% CI, 1,314-1,383). Children under the age of two who do not experience EBFI are at higher risk than those who have (AOR 1.078, 95% CI, 1.050-1.106).
2. Kusumawardani, et al (2023)	Stunting Among Children Under Two Years in the Islands Areas : A Cross-sectional Study of the Maluku Region in Indonesia, 2021	4764 children under two years.	This cross-sectional study examined 4764 children under two years. In addition to nutritional status (stature), the study analyzed ten independent variables (province, residence, maternal age, marital status, maternal education, employment, wealth, children's age, gender, and early initiation of breastfeeding [EIBF]). Finally, the contribution of various factors to stunting was examined using logistic regression.	Children in Maluku province were 1.13 times more likely than those in North Maluku province to become stunted. In addition, children aged 12-13 months were 4.09 times more likely than <12 months, and boys were 1.87 times more likely than girls to have the patterns of stunting. Children in rural areas were 1.10 times more likely to become stunted than those in urban areas (95% confidence interval: 1.06, 1.14). Divorced/widowed mothers were 1.88 times more likely than married mothers. Mothers of all education levels were more likely than those without formal education, and unemployed mothers were 1.07 times more likely than employed mothers to have stunted children. The possibility of becoming stunted was lower when the children were wealthier.
3. Laksono, et al (2022)	Factors Related to Stunting Incidence in Toddlers with Working Mothers in Indonesia	The study sampled 44,071 toddlers with working mothers	The cross-sectional study uses secondary data from the 2017 Indonesia Nutritional Status Monitoring survey. The	Maternal age partially affects the incidence of stunted toddlers in Indonesia. Mothers in the ≤19 age group are 1.461 (95% CI 1.140–1.872) times more likely than those in the ≥45

				survey was deployed on a national scale using the multistage cluster random sampling method.	group to have a severely stunted toddler. Those who were never married were 1.433 (95% CI 1.006–2.043) times more likely than those who were divorced/widowed to have a severely stunted toddler. A married mother was 0.734 (95% CI 0.617–0.872) times less likely to have a severely stunted toddler than a divorced/widowed mother. Better education is protective against working mothers having stunted toddlers. Moreover, the present study found that the toddler's age determined the incidence of stunted toddlers.
4.	Suyanto, et al (2024)	Understanding Stunting Risk Factors in Kampar Regency : Insights from Mothers With Stunted Children (Qualitative Study)	15 informants.	The research sample consisted of mothers referred by the Perhentian Raja Community Health Center with stunted children. Purposive sampling was employed to select informants and thematic analysis was used for data analysis.	A total of 15 informants were interviewed, leading to the identification of five themes related to stunting risks: (1) before pregnancy, (2) during pregnancy, (3) postnatal, (4) infectious disease factors, and (5) socio-demographic factors.
5.	Agussalim, et al (2024)	Risk Factor Analysis of Stunting in Children Aged 6-23 Months in Tanraili District, Maros Regency, Indonesia	260 samples consisting of 130 cases and 130 controls.	This study used a case control study design.	Risk factors associated with stunting were maternal age <20 or 35 years (OR=1.953), lower-middle family income (OR=1.947), antenatal care <4 visits (OR=1,820), anemia (OR=2.252), chronic energy deficiency (OR=2.261), low birth weight (OR=2,595), exclusive breastfeeding (OR=2.448), poor home

	sanitation (OR=2.226;). Working mothers are a protective factor against stunting (OR=0.819). Multivariate analysis shows that exclusive breastfeeding is the dominant risk factor for stunting.

Discussion

In the 5 studies, many kinds of the risks to related the stunting. There are associated with stunting, namely residence, age of mother, mother's education, mother's occupation, economic status, child's age, gender, EBFI, having no access to safe drinking water, not proper sanitation, and poor maternal hygiene practices. The other the risks to related the stunting were marital status, before pregnancy, during pregnancy, postnatal, infectious disease factors and socia-demographic factors.

Stunting is more common in rural areas than in urban ones for children under 2. These findings are in line with several studies that show children living in rural have a higher risk of experiencing stunting than those living in urban (Ashar et al., 2024). It is similar to the problem of malnutrition in children (Fagbamigbe AF, Kandala NB, 2020). The opposite results occur in children. Another study stated that children living in urban areas are more likely to become stunted (Khan S, Zaheer S, 2019). The differences between rural and urban areas are related to individual, family, and community factors (Fagbamigbe AF, Kandala NB, 2020).

Age of mother is a factor of risks to related the stunting. Maternal age is related to the physical and psychological condition of the mother during pregnancy and childbirth, as well as her ability to do good parenting. As the mother gets older, the risk of pregnancy will increase, one of which is the possibility of giving birth to LBW children, which can potentially increase the chance of childhood stunting (Gusnedi G et al, 2023).

Mother's work is the main activity that mothers do and earn income from these activities. Categorized as high risk if the mother works while the risk is low if the mother does not work (Agussalim et al., 2024). Mafuah's (2022) research which explains that working mothers are 21 times more likely to have children with stunting than non-working mothers (Marfuah D et al, 2022).

Additionally, a mother's level of education is correlated with the incidence of stunting. The higher the mother's level of education, the lower the risk of stunting. This is consistent with other studies findings showing that the risk of stunting decreases in mothers with higher education compared to mothers who are not educated. A possible explanation related to this education problem is that educated mothers have better literacy related to health problems experienced by children. Parents with low education have difculties communicating with health workers, conveying symptoms of illness experienced by children, and are not good at receiving information related to children's health (Ashar et al., 2024).

The other risk is economic status. Families with high economic status are able to supply their children's needs well by choosing nutritious and varied foods. However, Juwita's (2019) research shows no significant relationship between family income and the incidence of stunting (p value = 0.071) (Juwita S et al., 2019). Families with high incomes do not necessarily have a good nutritional status, but increasing income automatically increases

the opportunity to choose food ingredients and increase consumption with good nutritional content.

Regarding the age of under two years, children aged 12-23 months are more likely than < 12 months to become stunted. Research findings in the western part of Limpopo province, South Africa, discovered comparable results to this research, where children aged 12–23 months were shown to be at an enormous risk of being stunted (Modjadji P, 2020).

Furthermore, boys have a higher risk compared to girls. This result shows that gender correlates with nutritional vulnerability. At the same age, the severity of stunting is more likely to be found in boys. Even among the poorest groups, stunting is more common in boys than in girls. Research carried out in Senegal has found that boys tend to experience failure to thrive due to shorter breastfeeding periods and consuming complementary foods at an earlier age than girls. Boys are also more prone to infection and illnesses that can interfere with growth (Ashar et al., 2024).

Several studies state that EBFI performed less than one hour after the mother gives birth can reduce the risk of stunting. Breast milk colostrum given during EBFI can be a natural immunity for children. Mothers who do EBFI will tend to give exclusive breastfeeding to their children. This is crucial because exclusive breastfeeding can provide protection against infections and diarrhea, increase child immunity, and reduce stunting rates (Ashar et al., 2024).

Lack of access to sanitation facilities, leads to various health challenges such as helminth infections and enteropathy. Environmental enteropathy occurs due to repeated and long-term inflammation of the small intestines which results in reduced ability to absorb nutrients and causes health problems such as anemia, diarrhea and stunting. A household is considered to have access to proper sanitation if it meets several components, such as using a goose-neck toilet, having a septic tank or a Waste Water Treatment System (SPAL) and/or ground pit (for rural areas), and being used by the household itself or together with certain other households (Novianti et al., 2023).

Children whose mothers have poor hygiene practices are 1.9 times more likely to have stunting. According to Humphrey (2009), the main factor contributing to childhood malnutrition is a subclinical condition of the small intestine known as tropical enteropathy, which is brought on by children ingesting excessive amounts of excrement carrying bacteria when they live in unsanitary and unhygienic settings. Toddlers can be safeguarded against fecal contamination by safely disposing of their waste (defecating in latrines) and washing their hands with soap after coming into touch with feces as the primary defense against fecal-oral transmission (Novianti et al., 2023).

Regarding maternal marital status, the result confirmedbthat children under two years old with divorced/widowed mothers were more likely than those with married mothers to become stunted. Qualitative research in rural South Africa showed that a lack of spousal support, like in divorced or widowed mothers related to the power to purchase food, consequently heightened the risk of child stunting (Modjadji P, 2021).

The study indicates that mothers hold diverse opinions about factors contributing to stunting, with their views being shaped by health programs and personal experiences, specifically focusing on aspects like breastfeeding and weaning foods. Additionally, it underscores that education and economic challenges introduce complexity to understanding how mothers perceive the risk factors associated with stunting (Suyanto et al., 2024).

Conclusion

Many kinds of the risks to related the stunting. There are associated with stunting, namely residence, age of mother, mother's education, mother's occupation, economic status, child's age, gender, EBFI, having no access to safe drinking water, not proper sanitation, and poor maternal hygiene practices. The other the risks to related the stunting were marital status, before pregnancy, during pregnancy, postnatal, infectious disease factors and socia-demographic factors.

References

1. Agussalim, Zulkifli, A., Nasry Noor, N., Ansariadi, Stang, & Riskiyani, S. (2024). Risk Factor Analysis of Stunting in Children Aged 6-23 Months in Tanralili District, Maros Regency, Indonesia. *National Journal of Community Medicine*, *15*(7), 559–565. https://doi.org/10.55489/njcm.150720244014
2. Ashar, H., Laksono, A. D., Supadmi, S., Kusumawardani, H. D., Yunitawati, D., Purwoko, S., & Khairunnisa, M. (2024). Factors related to stunting in children under 2 years old in the Papua, Indonesia Does the type of residence matter? *Saudi Medical Journal*, *45*(3), 273–278. https://doi.org/10.15537/smj.2024.45.3.20230774
3. Fagbamigbe AF, Kandala NB, U. A. (2020). *Demystifying the factors associated with rural-urban gaps in severe acute malnutrition among under-five children in low- and middle-income countries: a decomposition analysis*. *10*, 1–15.
4. Gusnedi G, Nindrea RD, Purnakarya I, Umar HB, Andrafikar, S. et al. (2023). Risk factors associated with childhood stunting in Indonesia: A systematic review and meta-analysis. *Asia Pac J Clin Nutr*, *32*, 184–195.
5. Juwita S, Andayani H, Bakhtiar, Sofia, A. (2019). The Relationship between Total Family Income and Completeness of Basic Immunization with the Incidence of Stunting in Toddlers in Pidie Regency. *Jurnal Kedokteran Nanggroe Medika*, *2(4)1-10*.
6. Khan S, Zaheer S, S. N. (2019). Determinants of stunting, underweight and wasting among children < 5 years of age: Evidence from 2012-2013 Pakistan demographic and helath survey. *BMC Public Helath*, *19*, 1–16.
7. Kusumawardani, H. D., Laksono, A. D., Hidayat, T., Supadmi, S., Latifah, L., Sulasmi, S., Ashar, H., & Musoddaq, M. A. (2023). Stunting Among Children Under Two Years in the Islands Areas: A Cross-sectional Study of the Maluku Region in Indonesia, 2021. *Journal of Research in Health Sciences*, *23*(4), e00597–e00597. https://doi.org/10.34172/jrhs.2023.132
8. Laksono, A. D., Sukoco, N. E. W., Rachmawati, T., & Wulandari, R. D. (2022). Factors Related to Stunting Incidence in Toddlers with Working Mothers in Indonesia. *International Journal of Environmental Research and Public Health*, *19*(17). https://doi.org/10.3390/ijerph191710654
9. Marfuah D, Pertiwi D, Kusudaryati D, K. N. (2022). The Difference from Mother's Education, Mother's Occupation and History of Providing Weaning Food in Stunting and Non Stunting Toddlers in the Trucuk II Public Health Center Klaten. *LPPM PTMA*, 292–305. https://repository.urecol.org/index.php/proceeding/article/v%0Aiew/2445
10. Mediani, H. S. (2022). *Factors Affecting the Knowledge and Motivation of Health Cadres in Stunting Prevention Among Children in Indonesia*. *April*.
11. Modjadji P. (2021). Engaging mothers on the growth of school-age children in a rural South African health and demographic site: a qualitative insight. *Healthcare (Basel)*, *9(2):225*. 10.3390/healthcare9020225

12. Modjadji P, M. J. (2020). Persistent malnutrition and associated factors among children under five years attending primary health care facilities in Limpopo province, South Africa. *Int J Environ Res Public Health*, *17(20):758*. 10.3390/%0Aijerph17207580
13. Mustakim, M. R. D., Irwanto, Irawan, R., Irmawati, M., & Setyoboedi, B. (2022). Impact of Stunting on Development of Children between 1-3 Years of Age. *Ethiopian Journal of Health Sciences*, *32*(3), 569–578. https://doi.org/10.4314/ejhs.v32i3.13
14. Novianti, S., Huriyati, E., & Padmawati, R. S. (2023). Safe Drinking Water, Sanitation and Mother's Hygiene Practice as Stunting Risk Factors: A Case Control Study in a Rural Area of Ciawi Sub-district, Tasikmalaya District, West Java, Indonesia. *Ethiopian Journal of Health Sciences*, *33*(6), 935–944. https://doi.org/10.4314/ejhs.v33i6.3
15. Suyanto, S., Wahyuni, S., Zulharman, Z., Restila, R., Irfansya, R., Aprillianty, E. N., & Adraf, N. W. (2024). Understanding stunting risk factors in Kampar Regency: Insights from mothers with stunted children (qualitative study). *SAGE Open Medicine*, *12*(1). https://doi.org/10.1177/20503121241244662
16. World Health Organization. (2023). *Childhood Stunting : Challenges and Opportunities. Report of Promoting Healthy Growth and Preventing Childhood Stunting Colloqium*. https://www.who.int/%0Apublications/i/item/WHO-NMH-NHD-GRS-14.1