

Risk factors of stunting among under-fives in Indonesia: A literature review

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Abstract

Stunting is a major global nutritional problem, impacting 165 million children worldwide, with Indonesia ranking fifth among countries with high stunting rates. It is associated with increased health risks, reduced physical and cognitive development, and higher mortality rates in children. The aim of this research is to identify the factors influencing the occurrence of stunting in Indonesia. The research method utilized is a literature review, which involves searching for research articles from the electronic database Google Scholar using keywords such as Stunting, causal factors, Low Birth Weight, exclusive breastfeeding, and immunization. From the research findings, it can be concluded that the occurrence of Stunting is caused by risk factors such as exclusive breastfeeding (4 articles), Low Birth Weight (3 articles), Immunization (2 articles), and maternal education (2 article). Addressing these multifaceted factors is paramount for developing comprehensive strategies aimed at reducing stunting prevalence and promoting the healthy growth and development of Indonesian children.

Keywords: Stunting; Causal factors; Low Birth Weight; Exclusive breastfeeding; Immunization

1. Introduction

Stunting is a significant global nutritional issue, affecting 165 million toddlers worldwide. Eighty percent of stunted children are concentrated in 14 countries, with Indonesia ranking fifth in terms of the highest prevalence of stunting [1]. Data on stunting in Indonesia reveals a national prevalence increase from 35.6% in 2010 to 37.2% in 2013, followed by a decline to 30.8% in 2018. Data from the Monitoring of Nutritional Status (PSG) in 2017 also indicates that the percentage of stunted toddlers in the toddler group (29.6%) is higher compared to the under-two-years group (20.1%) [2]. Stunting is a condition where a toddler fails to grow adequately due to chronic malnutrition, resulting in a height shorter than the WHO 2005 standard [3].

Recent studies suggest that children experiencing stunting tend to have poor school performance, lower levels of education, and lower income in adulthood. Stunted children are more likely to grow into unhealthy and economically disadvantaged adults. Stunting in children is also associated with an increased vulnerability to both infectious and non-communicable diseases, as well as a higher risk of overweight and obesity. Overweight and obesity over the long term can raise the risk of degenerative diseases. Cases of stunting in children can serve as an indicator of the suboptimal quality of a country's human resources [4].

Stunting is also linked to an increased risk of morbidity and mortality, decreased physical capacity, developmental impairments, and motor and mental function disorders in children. Efforts have been made by the government through the Integrated Health Center (*Posyandu*) program, but they have not fully engaged all segments of the population. Community health workers and traditional birth attendants play essential roles in society and can strategically contribute to addressing stunting as they maintain close relationships with mothers and the community [5].

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Stunting is caused by various factors, including Low Birth Weight (LBW), insufficient exclusive breastfeeding practices, incomplete basic immunization, nutritional deficiencies, and inadequate nutrient intake among toddlers [6]. Babies born with LBW, specifically small-for-gestational-age infants, experience growth retardation during pregnancy, which continues after birth. Insufficient exclusive breastfeeding can increase the risk of digestive problems in children. Incomplete immunization can weaken the immune system and make children susceptible to diseases. Other studies also suggest that maternal education levels influence the occurrence of stunting, with lower maternal education levels increasing the risk of toddlers experiencing stunting [7]. Based on the background outlined above, the aim of this research is to identify the factors influencing the occurrence of stunting in Indonesia.

2. Material and methods

This research is classified as qualitative research using a literature review method and a descriptive analysis approach. The data for this study were sourced from national scientific journal articles obtained from the Google Scholar database using keywords such as "Stunting," "causal factors," "Low Birth Weight," "exclusive breastfeeding," and "immunization." The inclusion criteria for this research are scientific articles published within the last 5 years (2019-2023). The collected data will be analyzed, and conclusions will be drawn based on the analysis.

3. Results and discussion

Based on the collected and analyzed articles, the findings are presented as follows:

Table 1 List of Articles

No.	Author	Method	Result
1	Asmin et al. [8]	Cross sectional	There is a correlation between exclusive breastfeeding and immunization with the occurrence of stunting in children aged 9-24 months at the Rumah Tiga Health Center in Ambon
2	Nursyamsiyah et al. [9]	Cross sectional	The bivariate test showed that there were four independent variables relate to stunting. They are maternal height (p=0.000) OR 7.7 (95% CI 3.0-19.6), maternal education (p=0.000) OR 5.1 (95%CI 2.1-12.6), Household income (p=0.008) OR 3.2 (95% CI 0.2-2.0) and complete basic immunization history (p=0.028) OR 3.5 (95% CI 1.1-11.6)
3	Murti et al. [10]	Case control	There is an association between low birth weight (LBW) and the occurrence of stunting in children aged 2-5 years in Umbulrejo Village, Ponjong District, Gunung Kidul Regency, with a p-value of 0.000 and an odds ratio (OR) of 0.056.
4	Pasaribu et al. [11]	Case control	There is an association between low birth weight (LBW) and the occurrence of stunting in toddlers in Kemenangan Tani Village, with a p-value of 0.00 and an odds ratio (OR) of 7.333
5	Husnaniyah [12]	Cross sectional	There is a correlation between the mother's educational level and the occurrence of stunting, where the lower the mother's educational level, the greater the risk of children experiencing stunting
6	Sampe et al. [13]	Case control	There is correlation of exclusive breastfeeding with the incidence of stunting in children. While in the odds ratio test the value of R = 61 which means that children who are not exclusively breastfed are 61 times more likely to experience stunting than children who are exclusively breastfed.
7	Latifah et al. [14]	Cross sectional	There is an exclusive breast-feeding relationship with the Stunting event in infants 1-5 years, with a value of 0.629 which means there is a strong relationship between exclusive BREAST-feeding with Stunting events.
8	Wijayanti [15]	Case Control	There is a significant relationship between LBW, Exclusive breastfeeding and the incidence of stunting in children aged 2-5 years in Jadi Subdistrict, Semanding District, Tuban Regency

Based on the 8 articles presented in Table 1, this discussion will focus on identifying the risk factors for stunting in children under 5 years of age in Indonesia.

Factors consistently identified as significant influences on stunting include exclusive breastfeeding. According to research by Asmin et al. [8], as many as 31% of children experiencing stunting did not receive exclusive breastfeeding. Another study by Sampe et al. [13] also showed that toddlers who were not given exclusive breastfeeding and experienced stunting accounted for 66 (91.7%) of the respondents. Based on the results of the Odds Ratio test, toddlers who were not given exclusive breastfeeding were 61 times more likely to experience stunting compared to those who received exclusive breastfeeding. This is in line with the research by Latifah et al. [14], which noted that 83.3% of children not receiving exclusive breastfeeding experienced stunting. Research conducted by Wijayanti [15] also indicated that out of 47 toddlers not receiving exclusive breastfeeding, almost all of them experienced stunting, with 44 respondents (94%). Insufficient breastfeeding leads to poor nutritional intake, which can result in inadequate nutrition for children, one of the causes of stunting [16].

Research by Murti et al. [10] showed that the stunting group consisted of 23 respondents (71.9%) and those without low birth weight (LBW) numbered 9 respondents (28.1%). This finding is consistent with Pasaribu et al. [11], with an Odds Ratio value of 7.333, meaning that a history of LBW carries a 7.333 times higher risk of experiencing stunting compared to children without LBW. Similarly, Wijayanti's research [15] noted that out of 28 LBW toddlers, all of them experienced stunting, with 28 respondents (100%). Infants born with low birth weight may experience digestive system disorders that are not fully functional, resulting in difficulty in food absorption and possible electrolyte disturbances [17].

Research by Asmin et al. [8] revealed that only 25% of children experiencing stunting had received immunizations, and as many as 37% had not been immunized. This finding aligns with the results of research by Nursyamsiyah et al. [9], which showed that children without complete basic immunization history have a 3.5 times greater risk of experiencing stunting. Every child aged 0-9 months should have received complete basic immunizations. This is highly beneficial in building the baby's immune system and protecting them from various infectious diseases. Infections suffered by children can hinder optimal nutrient absorption in the body, potentially leading to stunting [8]. Providing complete basic immunization to children has a significant impact on their growth and development [18].

Research conducted by Nursyamsiyah et al. [9] found that mothers with only a basic education are 5.1 times more likely to have stunted children. This aligns with the study by Husnaniyah et al. [12], which showed that out of 134 respondents with only a primary school education and children with stunting, 67 (50%) were respondents. Education levels, especially the mother's education level, affect the degree of health. This is related to the significant role of the mother in shaping children's eating habits, as mothers are responsible for meal preparation, menu planning, shopping, cooking, and food distribution [12]. Mothers with higher education are more likely to make decisions that improve the nutrition and health of their children [19].

4. Conclusion

Based on research findings, several factors significantly contribute to the occurrence of stunting in children under the age of 5 in Indonesia. Exclusive breastfeeding emerges as a pivotal protective factor against stunting, consistently demonstrated across studies. Additionally, Low Birth Weight (LBW) substantially elevates the risk of stunting, underscoring the critical early-life intervention window. Inadequate immunization stands as another significant risk factor, emphasizing the importance of complete immunization schedules in childhood. Furthermore, maternal education levels exert a strong influence, with lower maternal education correlating with an increased likelihood of stunting. Addressing these multifaceted factors is paramount for developing comprehensive strategies aimed at reducing stunting prevalence and promoting the healthy growth and development of Indonesian children.

Compliance with ethical standards

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