The Determinant and Impact of Stunting

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Abstract: Stunting is still a problem, including in Indonesia. The consequences of stunting include higher susceptibility to chronic diseases (such as diabetes and heart diseases), lower developmental milestones, and lower school performances. Irreversible brain damage might happen due to iodine and iron deficiencies. Therefore, understanding the determinants and impact of stunting is critical. This paper aims to describe the determinants and impact of stunting. The impact of stunting might affect the brain and mental development. Poor school performance results in low income and poverty. Children who live in urban areas are less likely to be stunted due to better health care system access and facilities, greater availability of food, electricity, housing, water, transportation, and sanitation. A higher economic and educational level plays important roles in decreasing the prevalence of stunting. Stunting children pose a higher mortality risk. Stunting is a part of the monitoring framework of the Sustainable Development Goals. Providing a nutritious and diverse diet would prevent stunting. Improving affordable local management of food systems is one of the steps in increasing the nutritional status of stunted children. In conclusion, the determinants of stunting are socioeconomic status and the impacts of stunting are various from chronic disease, lower educational status, brain damage, and a higher mortality risk.

1 INTRODUCTION

Stunting has still become global problem in many countries, including Indonesia. Stunting mostly affects children under five years old. Indonesia occupies the third rank of stunting in Southeast Asia based on the WHO criteria. The consequences of stunting include higher susceptibility to chronic diseases (such as diabetes and heart diseases (lower developmental milestones and lower school performances. Irreversible brain damage might happen due to iodine and iron deficiencies. Therefore, understanding the determinants and impact of stunting is critical (Akombi et al., 2017; Atamou et al., 2023; Jumhur, 2024).

Multifactorial causes of stunting are inadequate nutrition and frequent infection. Stunting children will experience reduced cognitive performance and economic productivity. Then, there will be an increase burden on national socioeconomic and health systems (Atamou et al., 2023).

The impact of stunting might affect the brain and mental development. Poor school performance results in low income and poverty. Children who live in urban areas are less likely to be stunted due to better healthcare system access and facilities, a greater availability of food, electricity, housing, water, transportation, and sanitation. A higher economic and educational level play important roles in decreasing the prevalence of stunting. Stunting children pose a higher mortality risk. Stunting is a part of the monitoring framework of the Sustainable Development Goals. Providing a nutritious and diverse diet would prevent stunting. Improving affordable local management of food systems is one of the steps in increasing the nutritional status of stunted children (Bahrun & Wildan, 2022; Tumilowicz et al., 2018).

This paper aims to describe the determinants and impact of stunting.

2 METHODS

This paper is a narrative literature review. Literature was taken from PubMed, Science Direct, and Google Scholar. The publication date was in the last 10 years.

3 DISCUSSION

WHO defines stunting as an anthropometric measure of a child's height for an age less than -2 Standard Deviation. It was studied that nonexclusive breastfeeding for the first 6 months, premature birth, low socioeconomic status, and low maternal height are the most dominant stunting determinant in Indonesia

(Bahrun & Wildan, 2022; Hafid, Nasrul, et al., 2023; Mulyaningsih et al., 2021).

Community and societal factors—particularly, poor access to healthcare and living in rural areas—have been repeatedly associated with child stunting. Lack of education; agriculture and food systems; and water, environment, and sanitation are predispositions to stunting (Titaley et al., 2019; Tumilowicz et al., 2018).

There were five provinces in Indonesia with the most commonly found stunting cases, namely Nusa Tenggara Barat/West Nusa Tenggara (NTB), Nusa Tenggara Timur/East Nusa Tenggara (NTT), Aceh, West Sulawesi, and Southeast Sulawesi. Most cases were found in children under five years (Fitri et al., 2024). East Nusa Tenggara is the province with the highest prevalence of stunting. Stunting locus villages needs special attention from the Indonesian government. Maternal knowledge should be enhanced by distributing information related to stunting (Atamou et al., 2023).

In West Pasaman Regency, it was studied that infant under five years is the age group that is susceptible to stunting. The causes of stunting are health service location, parenting patterns, environmental conditions, and food consumption. It was shown that more than 30% of toddlers were stunted. The low socioeconomic level and low education reached more than 50%. The direct causes of stunting are infectious diseases. Indirect causes of stunting are infectious diseases, eating behavior, and environmental factors (Al-Ayubi & Ariyanti, 2021; Arlinda et al., 2022).

Malnutrition (stunting) in early life might induce inflammation and increased glucocorticoids. These changes might increase neurodevelopmental disorders and apoptosis.

Malnutrition affects cognition, locomotor skills, and memory. Neurodevelopment is hampered irreversible. Stunting increased the risks of cognitive impairment more than 3 times higher than normal. Improving the nutritional intake for toddlers and pregnant women might prevent stunting (Mustakim et al., 2022; Putri et al., 2022; Widyaningsih et al., 2022). However, the Covid-19 pandemic exacerbates stunting badly due to economic reasons of the community (Mustakim et al., 2022). Furthermore, stunting increases the burden of the socioeconomic of a country (Rahman et al., 2020). Based on the scoping review by Togarotrop et al. in 2023, there were 10 factors determinant of stunting, i.e. mother, child, inadequate breastfeeding, poor-quality foods, political economy, infection, sociocultural factors, and healthcare (Togatorop et al., 2023). Water and hygiene also play important roles in stunting determinants (Torlesse et al., 2016).

Stunting could be minimized by reducing low birth weight, managing birth more than 3 years, less than 3 children, and breastfeeding (Hafid, Ansar, et al., 2023; Zakaria et al., 2024). Counseling for child growth and development is one way of discussing eating patterns to prevent stunting (Vaivada et al., 2020).

4 CONCLUSIONS

In conclusion, the determinants of stunting are socioeconomic status and the impacts of stunting are various from chronic disease, lower educational status, brain damage, and a higher mortality risk. The impact of stunting might affect the brain and mental development.

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