Jurnal Scientia
Volume 13, Number 04, 2024, DOI 10.58471/ scientia.v13i04
ESSN 2723-7486 (Online)
https://infor.seaninstitute.org/index.php/pendidikan

The Influence of Socioeconomic and Nutritional Factors on Reducing Stunting Rates: A Comparative Study of Indonesia and the Philippines

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Article Info
Keywords:
Socioeconomic factors,
Nutrition,
Stunting reduction,
Indonesia,
Philippines

ABSTRACT
Stunting remains a significant public health issue in developing countries, including Indonesia and the Philippines, where high rates of child malnutrition persist. Stunting impairs physical and cognitive development, limiting the future potential of affected children. This comparative study investigates the influence of socioeconomic and nutritional factors on reducing stunting rates in both countries. A systematic literature review was conducted, focusing on research published between 2010 and 2023, obtained from databases such as Google Scholar and Scopus. The analysis included studies examining the relationship between household income, parental education, nutritional intake, and access to health services, as well as government policy initiatives. Data extraction and thematic analysis were employed to categorize socioeconomic and nutritional determinants of stunting in both countries. The findings suggest that both socioeconomic factors, including parental education and household income, and nutritional factors, such as dietary diversity and breastfeeding practices, significantly influence stunting reduction. Differences in health infrastructure and community-level interventions also contribute to the variations in stunting rates between Indonesia and the Philippines. The study concludes that addressing stunting requires a multifaceted approach, combining socioeconomic improvement, enhanced access to health services, and targeted nutritional interventions. Policies that focus on improving maternal education, community health services, and food security can significantly reduce stunting rates. The findings underscore the importance of coordinated efforts between government, health sectors, and communities to effectively combat stunting and improve child health outcomes in both countries.

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INTRODUCTION

Stunting is a significant public health concern, especially in low- and middle-income countries, where factors like poverty, food insecurity, and inadequate healthcare infrastructure contribute to high rates of malnutrition. Stunting refers to impaired growth and development in children due to chronic malnutrition during critical periods of growth, particularly in the first

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1,000 days from conception to a child's second birthday.[1,2] Children affected by stunting are more likely to face long-term health complications, cognitive impairments, and lower productivity in adulthood, which can perpetuate cycles of poverty and hinder socioeconomic progress. Globally, stunting has become a priority in public health agendas, with international bodies such as the World Health Organization (WHO) setting ambitious targets to reduce stunting prevalence by 2030.[3,4]

In Southeast Asia, Indonesia and the Philippines rank among the countries with the highest stunting rates, posing a critical challenge to their public health systems.[5,6] In both nations, stunting is driven by a complex interplay of socioeconomic factors, such as low household income, limited access to nutritious foods, and insufficient healthcare services.[7–9] Despite ongoing national programs and interventions aimed at improving maternal and child nutrition, stunting rates remain stubbornly high, with significant disparities across regions and income levels. These conditions have prompted targeted research and policy efforts to better understand and address the underlying causes of stunting, focusing on both immediate nutritional needs and broader socioeconomic determinants that impact childhood growth and development in Indonesia and the Philippines.

Understanding how socioeconomic and nutritional factors affect stunting rates in Southeast Asia is crucial for several reasons. This region, which includes countries like Indonesia and the Philippines, faces persistently high stunting rates, largely driven by factors such as poverty, food insecurity, inadequate healthcare, and educational disparities.[10] These conditions are often interconnected, with low-income households having limited access to nutritious foods and health services, exacerbating the risk of chronic malnutrition among children. Stunting, a result of prolonged nutritional deprivation, has far-reaching effects on physical and cognitive development, potentially limiting educational and employment opportunities later in life.[11] By identifying the specific socioeconomic and nutritional factors that influence stunting, policymakers and healthcare providers can develop targeted interventions to address these underlying causes and reduce stunting prevalence more effectively.

As presented in Figure 1, the pie chart illustrates the key indicators influencing stunting rates in Indonesia and the Philippines, emphasizing the importance of both socioeconomic and nutritional factors. Parental education level (20%) and household income (18%) are the most significant determinants, highlighting the role of socioeconomic status in children's growth and health outcomes. Dietary diversity (15%) and breastfeeding practices (13%) also play a crucial role, underlining the importance of adequate nutrition during early childhood. Access to healthcare (12%) is essential in ensuring children receive proper medical care and nutritional guidance. Community health interventions (11%) and food security (11%) represent foundational support for improving stunting rates at the local level. These findings underscore the multifaceted nature of stunting reduction, which requires an integrated approach targeting both socioeconomic and nutritional aspects for lasting improvements.

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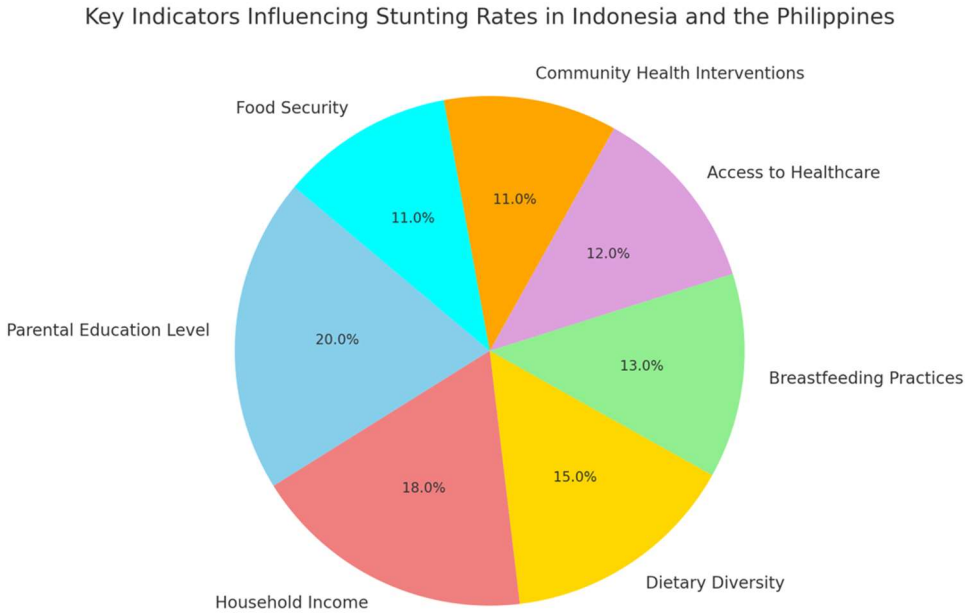

Figure 1. The key indicators influencing stunting rates in Indonesia and the Philippines.

In addition, understanding these factors is essential for tailoring interventions to the unique social, economic, and cultural contexts of Southeast Asian countries. While global strategies for reducing stunting exist, they often need adaptation to fit local conditions and address the specific challenges faced by communities in Southeast Asia.[12] For instance, interventions that focus on improving household food security may need to consider local food production capacities and dietary preferences to be successful. Similarly, education and awareness programs targeting maternal and child health must be designed to overcome barriers to information access in rural and low-income areas.[13] In this way, a deeper understanding of the socioeconomic and nutritional determinants of stunting can drive more sustainable and culturally sensitive solutions, ultimately contributing to healthier, more resilient communities across the region.

Furthermore, stunting remains a critical public health issue in Southeast Asia, particularly in countries like Indonesia and the Philippines, where high rates of child malnutrition persist despite various interventions. Socioeconomic factors, including poverty, limited access to healthcare, and low educational attainment, combined with inadequate nutrition, significantly contribute to the prevalence of stunting in these countries. [14] However, there is limited comprehensive analysis that integrates these factors to understand their collective impact on stunting rates. Without a clear understanding of how these socioeconomic and nutritional factors interact, current policies and programs may fall short of effectively addressing the root causes of stunting. Hence, this literature review seeks to address this gap by systematically analyzing existing research to provide a clearer picture of the complex relationship between socioeconomic status, nutrition, and stunting in Indonesia and the Philippines, informing more targeted and effective public health strategies.

In addition, this review seeks to address two main research questions: first, what are the primary socioeconomic and nutritional factors that impact stunting rates in Indonesia and

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the Philippines? Second, how do these factors differ between the two countries? By examining these questions, the review aims to uncover the specific socioeconomic conditions and nutritional challenges contributing to stunting in each country, highlighting any contrasts that may inform more targeted and culturally appropriate interventions. Hence, the objective of this literature review is: (i) to systematically examine and synthesize existing research on the socioeconomic and nutritional factors influencing stunting rates in Indonesia and the Philippines, (ii) to identify the key determinants of stunting in each country, explore any differences in how these factors manifest across the two settings, and provide insights that can guide the development of targeted public health interventions, and (iii) to contribute to a more comprehensive understanding of the socioeconomic and nutritional challenges impacting child health in Southeast Asia, supporting efforts to reduce stunting and improve long-term health outcomes.

METHOD

The methodology for this study is based on a systematic literature review, aiming to compare the influence of socioeconomic and nutritional factors on reducing stunting rates in Indonesia and the Philippines. The review process began with defining specific research questions to guide the search and selection of relevant studies, focusing on stunting prevalence, nutritional interventions, socioeconomic determinants, and policy initiatives in both countries. Academic of Scopus were used to gather peer-reviewed articles, government reports, and grey literature published between 2010 and 2024. The inclusion criteria consisted of studies that provided empirical evidence on socioeconomic and nutritional factors related to stunting among children aged 0-5 years in Indonesia and the Philippines.

Thematic analysis was used to synthesize the information, which enabled the identification of common themes and unique challenges faced by each country in addressing stunting. The comparative aspect of the analysis involved examining the effectiveness of policies, community programs, and interventions across Indonesia and the Philippines, considering their socioeconomic contexts. The methodological rigor of each study was assessed to ensure reliability and reduce bias, ensuring that only high-quality evidence contributed to the conclusions drawn in the literature review. This approach provided a comprehensive overview of the current state of knowledge regarding stunting and highlighted gaps that future research could address

RESULTS AND DISCUSSION

Results

Findings on Stunting and Public Health Impact

Stunting, a condition marked by insufficient growth and development in children, is commonly defined by a height-for-age z-score more than two standard deviations below the World Health Organization (WHO) median. It is primarily a result of chronic undernutrition during critical periods of a child's development, particularly in the first 1,000 days from conception to age two.[15] Measurement of stunting is standardized through anthropometric assessments, where a child's height and age data are compared against WHO growth standards. Unlike

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wasting, which indicates acute undernutrition, stunting represents long-term growth failure and is a more reliable indicator of structural issues within a population, such as food insecurity, poor maternal health, and substandard healthcare.[16]

Stunting, affecting approximately 165 million children under 5 globally, is a major public health concern with significant long-term consequences. It leads to increased morbidity, mortality, and reduced physical, neurodevelopmental, and economic capacity. The economic impact is substantial, with stunting associated with a 4-6% increase in wages per cm of adult height.[1] Nutrition interventions show promising returns, with some studies reporting a 25-46% increase in wages for affected children.[17] While global stunting prevalence has decreased since 1990, progress varies by region, with sub-Saharan Africa seeing an increase of 12.4 million stunted children between 1990 and 2015. Addressing stunting requires a multisectoral approach, including nutritional interventions, with potential windows for intervention extending beyond the first 1,000 days into later childhood and adolescence.[4,18] Hence, efforts to mitigate stunting often involve improving maternal and child nutrition, enhancing access to healthcare, and addressing socio-economic barriers, demonstrating that effective stunting prevention requires a holistic and multi-sectoral approach.

Childhood stunting has profound long-term consequences on physical, cognitive, and economic development. Stunted children often fail to reach their full height potential and face increased risks of health problems in adulthood.[1] Cognitively, stunting is associated with developmental delays and lower cognitive functioning, affecting academic performance and future job prospects.[19] A study of Brazilian adults found that those stunted in early childhood had lower BMI, fat mass, and blood pressure, but a higher visceral fat to subcutaneous abdominal fat ratio, potentially predisposing them to metabolic risks later in life.[20] The economic impact of stunting on the private sector in low- and middle-income countries is substantial, with billions of dollars lost in sales and workforce earnings annually. Investing in stunting reduction interventions could yield significant returns, ranging from $2 to $81 per $1 invested annually across different countries.[21]

Furthermore, childhood stunting has significant economic impacts on individuals and nations. A 10% increase in GDP per capita reduces stunting prevalence by 2.7%, while a 1% increase in stunting decreases GDP per capita by 0.4%.[22] Long-term effects of stunting include reduced wages, with a 1-cm increase in adult height associated with 4-6% higher wages.[9] In Southeast Asia, reducing stunting requires addressing both disease reduction and improving nutrient intake through dietary diversity, which is influenced by economic development, urbanization, and food system modernization. The private sector, which employs nearly 90% of the workforce in many low- and middle-income countries, faces significant costs due to stunting. Investing in stunting reduction interventions yields returns of $2 to $81 per $1 invested annually, with higher returns for men and in elementary occupations.[21,23]

As presented in Figure 2, The bar chart visualizes key aspects and impacts of stunting globally, focusing on economic and health outcomes. The global prevalence of stunting is substantial, affecting 165 million children under the age of five. The economic impact of stunting is significant, with stunted individuals experiencing up to 4.5% lower wages.

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Conversely, nutrition interventions have shown promising results, with potential wage increases of up to 25%. An increase in GDP per capita reduces stunting prevalence by 2.7%, reflecting the strong link between economic development and health outcomes. The private sector, employing 90% of the workforce in many low- and middle-income countries, is also heavily impacted by stunting. Investments in stunting reduction offer considerable returns, ranging from $2 to $81 per dollar invested, demonstrating the economic viability of such interventions.

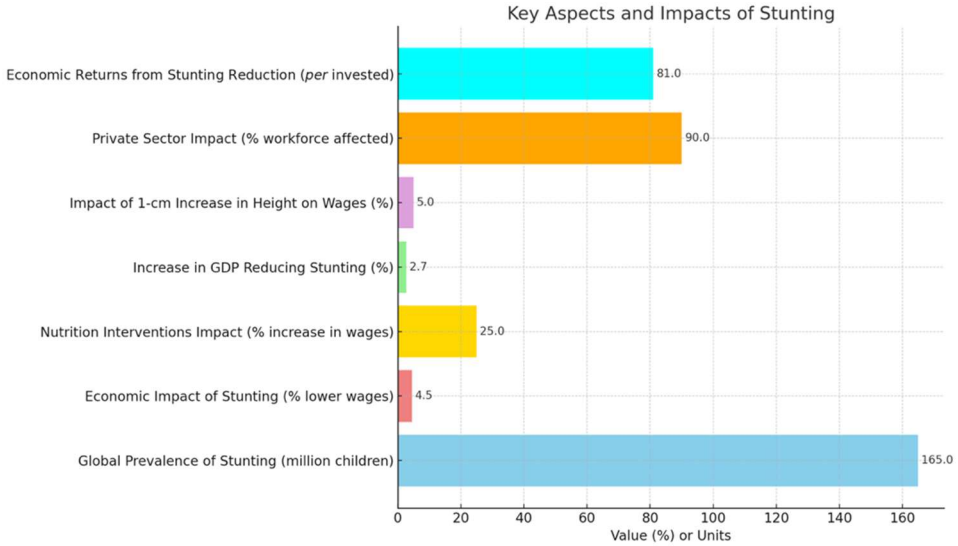

Figure 2. Key Aspects and Impacts of Stunting Globally

Findings on Socioeconomic Factors Influencing Stunting

Household income significantly influences nutrition and access to healthcare, both of which are critical factors in preventing stunting. Families with higher incomes can afford more nutritious food, essential for proper growth and development in children. Low-income households, on the other hand, often face food insecurity and may rely on cheaper, less nutritious options, leading to insufficient intake of vital nutrients like protein, iron, and vitamins.[24] Additionally, limited financial resources restrict access to healthcare services, including prenatal and postnatal care, which are essential for ensuring maternal and child health.[25] Without proper healthcare access, children in low-income families are more vulnerable to illnesses that exacerbate malnutrition, further increasing the risk of stunting.

Stunting, a critical health issue affecting children under five, is closely linked to poverty and economic factors in Indonesia and other developing countries. Studies have shown a significant positive correlation between poverty rates and stunting prevalence [26]. While Indonesia has made progress in reducing stunting, it remains a major concern alongside the Philippines and Timor Leste in Southeast Asia.[27] Economic growth in different sectors has varying impacts on stunting rates, with primary sector growth positively affecting stunting while secondary sector growth shows a negative impact. The long-term consequences of stunting include reduced economic potential and increased poverty rates. Mapping stunting prevalence across Indonesian provinces reveals regional disparities, with some areas

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requiring prioritized interventions. Addressing stunting requires a multifaceted approach, including improved nutrition, healthcare access, and sanitation.

As viewed in Figure 4, the bar chart illustrates the various factors influencing stunting and economic growth in Indonesia. Household income significantly impacts nutrition (30%), emphasizing the role of financial resources in providing nutritious food for proper child development. Food insecurity in low-income households contributes 20% to stunting risk, while access to healthcare services (15%) is crucial for prenatal and postnatal care to prevent malnutrition. Economic growth in the primary sector (10%) has a positive effect, while growth in the secondary sector (-10%) negatively impacts stunting rates. Regional disparities in stunting (10%) highlight the unequal distribution of interventions across provinces. The need for improved nutrition and healthcare (25%) indicates a critical focus area for reducing stunting. The chart demonstrates the multifaceted nature of stunting prevention, requiring comprehensive efforts across socioeconomic and healthcare sectors.

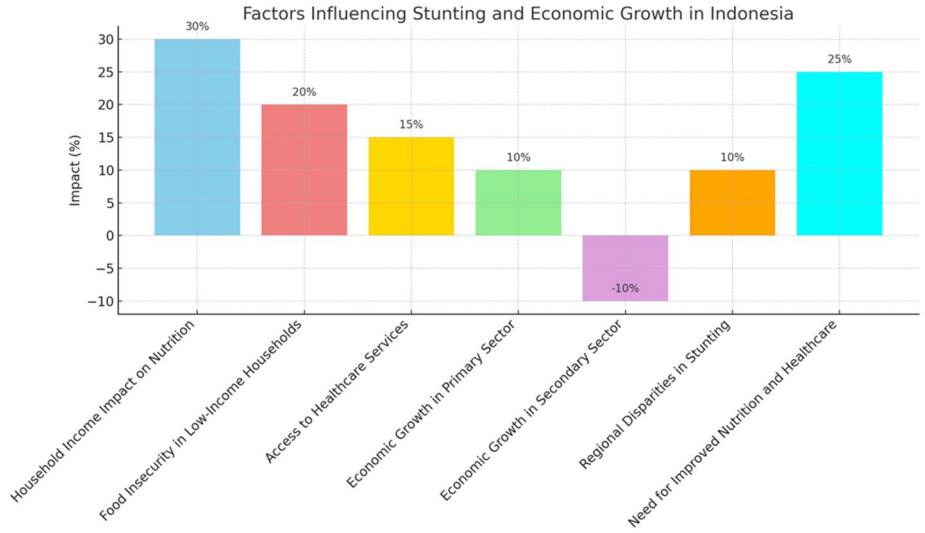

Figure 3. The Various Factors Influencing Stunting and Economic Growth In Indonesia

Findings on Parental Education on Preventing Stunting

Parental education, especially maternal education, plays a critical role in improving child nutrition and healthcare practices, which are essential for preventing stunting. Educated parents are generally more aware of nutritional needs, hygiene practices, and the importance of healthcare, all of which contribute to a child's healthy growth and development. Mothers with higher education levels are more likely to adopt beneficial feeding practices, ensure routine health check-ups, and provide a balanced diet that supports adequate nutrient intake. Educated parents are also better equipped to understand health information, make informed choices about food and healthcare, and access health services, which together reduce the risk of stunting.

Research from Indonesia and the Philippines demonstrates a complex relationship between parental education and childhood stunting. While some studies show that higher maternal education is associated with lower stunting rates,[28,29] others find no significant

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correlation.[30] However, Vollmer et.al. suggest that both maternal and paternal education are important factors in reducing childhood undernutrition.[29] In addition, Laksono et.al reports that mothers with lower education levels have higher chances of having stunted children under two years in Indonesia.[31] However, Togatorop et.al. found no significant relationship between maternal education, parenting practices, and stunting in rural West Java.[10] Interestingly, Handayani et.al. observed that stunted children from low-income families with highly educated mothers have an increased risk of becoming overweight or obese later in life.[32] These findings highlight the complex interplay of factors contributing to childhood stunting and emphasize the need for further research to inform targeted interventions.

As presented in Figure 4, the bar chart illustrates the key aspects of parental education that influence childhood stunting outcomes. The most impactful aspect is maternal education's effect on nutrition awareness (25%), emphasizing the importance of informed parenting for healthy child development. Higher education is linked to beneficial feeding practices (20%), while routine health check-ups by educated parents (15%) are crucial for early detection and prevention of stunting. A balanced diet supported by education (13%) also plays a significant role in preventing nutrient deficiencies. Maternal education is often associated with lower stunting rates (12%), but low education levels present a higher risk of stunting (10%). The complexity of the relationship between education and stunting (5%) indicates variability across different studies, highlighting the need for further research.

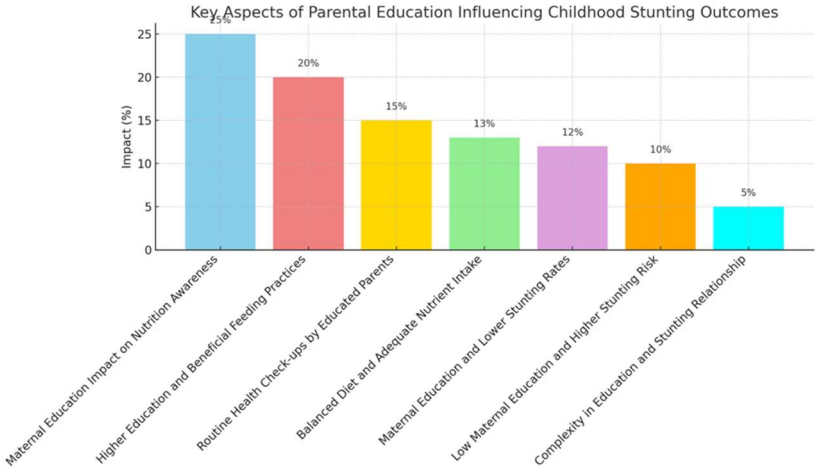

Figure 4. The Key Aspects of Parental Education That Influence Childhood Stunting Outcomes.

Findings on Employment and Economic Stability

Research indicates that economic instability and food insecurity significantly impact child health and nutrition. Households experiencing employment and income instability are more likely to face food insecurity, which is strongly associated with childhood undernutrition, particularly stunting and underweight.[33,34] Maternal employment status plays a crucial role, with children of unemployed mothers at higher risk of stunting.[35] Economic growth contributes modestly to reducing child stunting, with a 10% increase in GDP per capita

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leading to a 2.7% decrease in stunting prevalence.[22] However, the relationship is bidirectional, as child stunting also negatively affects economic growth, costing developing countries an average of 13.5% of GDP per capita. To address these issues, multisectoral interventions focusing on sustainable economic growth, reducing inequalities, and improving maternal education and nutrition are recommended.

The differences in employment structures between Indonesia and the Philippines also influence stunting prevalence in each country. In Indonesia, a large portion of the population is engaged in informal or low-income jobs, such as small-scale agriculture or day labor, which are less stable and often lack social protections. This structure contributes to economic vulnerability and fluctuating household incomes, affecting food security and heightening stunting risks.[36] In the Philippines, while the economy is more diversified, a substantial number of workers are employed in low-paying service-sector jobs or work overseas as migrant laborers. Remittances from overseas workers help some Filipino families afford better nutrition, but this reliance on external income sources also highlights economic challenges within the country.[37] Understanding these employment patterns and their effects on household food security can inform targeted policies to support economic stability, improve food access, and ultimately reduce stunting rates in both nations.

Findings on Access to Healthcare and Social Services

Access to healthcare and social services is crucial in the fight against stunting, as these services provide the necessary support for maternal and child health. In both Indonesia and the Philippines, healthcare availability, particularly maternal and child health programs, directly affects child growth outcomes. Programs that provide prenatal care, vaccinations, nutritional supplements, and regular health check-ups help ensure that children receive the nutrients and medical attention they need during critical stages of development.[38] However, disparities in healthcare access, especially in rural and impoverished areas, mean that many families struggle to benefit from these services. Limited healthcare infrastructure, high costs, and geographic barriers in both countries hinder equitable access, which contributes to higher stunting rates among underserved populations.[24]

Government-provided social safety nets and healthcare policies also play a pivotal role in reducing stunting by addressing some of the socioeconomic determinants of malnutrition. In recent years, both Indonesia and the Philippines have implemented various policies and social assistance programs aimed at improving food security and healthcare access for low-income families. These include conditional cash transfer programs that incentivize families to prioritize health and education, as well as healthcare subsidies that make medical services more affordable.[24] While these initiatives have shown promising results in reducing stunting, their impact is often limited by inconsistent funding, implementation challenges, and gaps in coverage. Strengthening and expanding these social safety nets and ensuring their accessibility to all families can enhance their effectiveness, helping to lower stunting rates and promote healthier childhood development across both countries.[24]

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Discussion

Comparative Analysis between Indonesia and the Philippines

A comparative analysis of Indonesia and the Philippines highlights the significant role of socioeconomic factors in stunting outcomes. Stunting, or chronic malnutrition, is often caused by poverty, food insecurity, limited access to healthcare, and insufficient maternal education.[39] In both countries, high poverty rates lead to inadequate access to nutritious food and healthcare, creating a cycle of malnutrition. Lower-income households are particularly vulnerable, as they often experience food scarcity and consume food that lacks diversity, leading to nutrient deficiencies that hinder child growth.[40]

While both countries share similar socioeconomic challenges, there are notable differences that affect stunting outcomes. Indonesia's large population and economic structure, with many employed in the informal sector, create income instability, impacting food security. In contrast, the Philippines benefits from remittances sent by overseas workers, which help improve access to food and healthcare.[41] However, this reliance on remittances underscores the lack of local job opportunities and economic vulnerability. Stunting rates in both countries are high but vary based on regional and economic factors. To address this, targeted strategies are needed to improve food access, healthcare, maternal education, and income stability.[42] Tackling both immediate nutritional needs and broader socioeconomic conditions will be key to reducing stunting rates and breaking the cycle of poverty and malnutrition for future generations.

Nutritional Interventions

A comparative analysis of nutrition-specific policies in Indonesia and the Philippines reveals both shared and unique strategies to combat malnutrition and stunting. Indonesia's "1000 Days Movement" (Gerakan 1000 Hari Pertama Kehidupan) targets the critical first 1,000 days of a child's life, focusing on breastfeeding, micronutrient supplementation, and maternal counseling.[43] Similarly, the Philippines has the Philippine Plan of Action for Nutrition (PPAN), which includes food fortification, health education, and community-based interventions. Both countries collaborate with international organizations like UNICEF and WHO, but challenges in coordination and funding limit the impact of these programs.[44]

The effectiveness of national versus local programs varies. National programs offer a unified framework and larger funding, enabling wide-reaching implementation. However, local programs are more effective in addressing community-specific issues, such as direct food assistance, maternal education, and improving healthcare access. While national programs can tackle broad issues, local programs are better at responding to immediate needs but often lack the resources of national initiatives.[45] For sustainable stunting reduction, combining national resources with locally tailored interventions is essential, as this approach ensures both broad coverage and targeted solutions to address diverse regional challenges.

As presented in Figure 4, the horizontal bar chart illustrates the key socioeconomic factors and nutritional interventions influencing stunting outcomes in Indonesia and the Philippines. High poverty rates (20%) and food insecurity (18%) are identified as the most significant factors contributing to stunting, emphasizing the impact of financial limitations on children's growth. Access to healthcare (15%) and maternal education (12%) are crucial in

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mitigating stunting, as they support adequate prenatal and postnatal care and promote awareness of child nutrition. Economic instability in Indonesia (10%) and remittances in the Philippines (10%) reflect the unique economic challenges faced by each country, impacting food security and access to healthcare. Both national (8%) and local nutritional programs (7%) contribute to addressing stunting, though local programs may provide more tailored support to community needs.

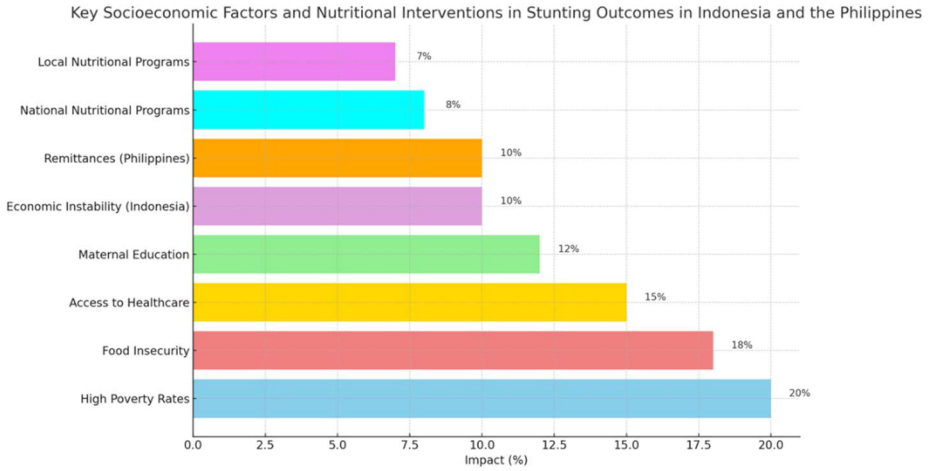

Figure 4. the key socioeconomic factors and nutritional interventions influencing stunting outcomes in Indonesia and the Philippines

Policy and Governance

Indonesia and the Philippines have distinct policy frameworks to address stunting and nutrition challenges. Indonesia's National Strategy to Accelerate Stunting Prevention is a multi-sectoral initiative targeting nutrition, sanitation, clean water, and maternal health, leveraging collaboration across government agencies. Conversely, the Philippine Plan of Action for Nutrition (PPAN) focuses on nutrition-specific interventions, such as improving access to fortified foods, maternal health, and community-based programs to reduce stunting prevalence.

Governance structures play a crucial role in the effectiveness of these policies. Indonesia's decentralized system allows regional governments to adapt health and nutrition strategies to local needs, although this can lead to disparities in resource allocation. In contrast, the Philippines employs a centralized approach, ensuring uniform policy enforcement but limiting flexibility for local adaptation. These governance styles significantly influence the reach, adaptability, and overall outcomes of stunting and nutrition-related programs in each country.

Interpretation of Findings

Stunting in Indonesia and the Philippines is shaped by socioeconomic and nutritional factors, such as economic stability, healthcare access, dietary diversity, and parental education. Poverty limits household access to adequate nutrition, quality healthcare, and education in both countries. Indonesia's regional inequalities exacerbate stunting disparities, as poorer regions often lack healthcare and nutrition infrastructure. In the Philippines, rural

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areas face high stunting rates due to limited dietary diversity, inadequate healthcare, and job insecurity.

Socioeconomic and nutritional factors interact differently in each country. Indonesia's decentralized governance allows for localized interventions, but often results in unequal implementation. Stunting is prevalent where diets lack diversity and depend heavily on staple foods like rice. In the Philippines, centralized policies ensure consistent nationwide programs but lack flexibility to address local needs, especially in remote regions. Food insecurity and poverty result in insufficient nutrient intake, such as iron and vitamin A, highlighting the need for adaptable, context-sensitive policies to reduce stunting.

Implications for Policy and Practice

The findings on stunting in Indonesia and the Philippines suggest several key recommendations for policymakers, healthcare providers, and NGOs to address this persistent public health issue. Policymakers should consider strengthening nutrition-sensitive policies, such as improving food security, enhancing maternal and child health services, and expanding educational initiatives on nutrition and health. Healthcare providers can play a critical role by implementing regular screening for stunting in early childhood and providing tailored nutritional counseling to at-risk families. NGOs, with their extensive community networks, could focus on creating awareness campaigns and providing supplementary food programs in high-risk areas. A collaborative approach that involves these stakeholders can ensure that resources are effectively allocated and that policies are implemented in a way that directly benefits vulnerable communities.

Tailored approaches to stunting reduction are essential, given the unique socioeconomic and geographical factors in each country. In Indonesia, where regional disparities significantly influence stunting rates, targeted interventions at the provincial level could be beneficial. For example, regional governments could focus on building infrastructure for clean water access and healthcare facilities in underserved areas, as well as providing economic support for low-income families to afford nutritious food. In the Philippines, a more centralized approach might continue to be effective if adapted to address the specific needs of rural and isolated regions, where malnutrition is most prevalent. Mobile health clinics, community gardens, and local food fortification programs could enhance accessibility to health and nutritional services in remote areas. These tailored strategies could increase the effectiveness of national policies by addressing the challenges faced by communities in both countries.

Limitations of the Review

This review on stunting in Indonesia and the Philippines has certain limitations that must be acknowledged. One key limitation is the potential for publication bias, where studies with significant findings are more likely to be published than those with null or inconclusive results. This bias may skew the understanding of stunting's causes and impacts by overemphasizing certain factors. Additionally, there is variability in the quality and methodology of the studies reviewed, with differences in sample sizes, regional focuses, and measurement techniques, which can affect the comparability of findings. Some studies may rely on self-reported data, which can be subject to inaccuracies, while others might use

varying definitions and thresholds for stunting, further complicating direct comparisons. These limitations highlight the need for caution when generalizing findings and underscore the importance of more standardized, high-quality research to draw reliable conclusions about stunting and its contributing factors in these countries.

CONCLUSIONS

This review highlights several key insights into the socioeconomic and nutritional factors influencing stunting in Indonesia and the Philippines. Major findings indicate that poverty, limited access to healthcare, and inadequate parental education are significant contributors to high stunting rates in both countries. Additionally, dietary quality, diversity, and the prevalence of micronutrient deficiencies emerge as critical areas impacting child growth. The review also underscores the role of policy, revealing that both national and local-level interventions are essential to effectively address malnutrition and stunting. Tailored, region-specific approaches—such as targeted nutrition programs, enhanced maternal and child health services, and community-based educational initiatives—are recommended. These insights are vital for shaping comprehensive stunting reduction strategies that address the unique challenges faced by each country. Future research should focus on longitudinal studies to better understand the long-term impacts of stunting and identify critical windows for effective intervention. Studies targeting specific populations, such as low-income rural communities or regions with particularly high stunting rates, could provide insights into the localized drivers of malnutrition. Additionally, research that evaluates the effectiveness of targeted interventions, such as maternal nutrition programs or dietary supplementation for children, would be beneficial. Regional studies comparing stunting in different provinces within Indonesia and the Philippines could also help policymakers design more tailored, culturally relevant strategies. Lastly, exploring the impact of emerging social policies and healthcare advancements on stunting trends would provide a more comprehensive understanding of how to reduce stunting effectively in both countries.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to the Program Studi Magister Kesehatan Masyarakat, Fakultas Kesehatan Masyarakat, Universitas Mandala Waluya Kendari, Indonesia, for providing the academic support and resources necessary for the completion of this article. We are especially grateful for the insightful guidance and encouragement provided by the faculty members, as well as the conducive learning environment that fostered our research efforts.

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