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HOSPITAL MANAGEMENT ON STUNTING INTERVENTION FOR ECONOMIC GROWTH ACCELERATION TOWARDS THE GOLDEN INDONESIA 2045

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ABSTRACT
Introduction: Stunting is a significant health problem that impairs children's physical and cognitive development, leading to long-term consequences for economic growth and workforce productivity. A productive labour force, fuelled by demographic bonus opportunities from 2020 to 2045, is key to accelerating Indonesia's economic growth. Effective prevention of stunting can improve the quality of human resources and support the vision of "The Golden Indonesia 2045." Despite a reduction in the stunting rate to 21.6% in 2022, the decrease slowed to only 0.1% in 2023, with a target of 14% set for 2024. Simultaneously, Indonesia's GDP is projected to reach USD 1.3 trillion by the first quarter of 2024. This study examines how hospital management can play a role in reducing stunting and boosting economic growth.
Research Methods: Through a literature review, the study compiles data from articles, government publications, and case studies regarding hospital management's role in stunting interventions. It identifies key strategies used by hospitals to combat stunting and how these efforts contribute to economic growth aligned with Indonesia's Golden Vision for 2045.
Findings/Results: The study reveals that hospital management practices such as data-driven nutrition programs, staff training, and continuous monitoring systems are effective in managing and reducing stunting. These interventions not only improve children's health but also have a direct positive impact on Indonesia's economic growth. Meeting stunting reduction targets is essential for positioning Indonesia as one of the world's leading economies by 2045.
Keywords: Hospital Management, Stunting, Economic Growth, The Golden Indonesia 2045

INTRODUCTION

1.1 Background

Stunting is a condition of impaired physical growth in children, caused by chronic malnutrition, particularly in the first 1,000 days of life. Short-term effects include delayed growth, cognitive and motor development, and metabolic disorders. Long-term impacts include reduced intellectual capacity, lower productivity, and higher risks of diseases like diabetes, hypertension, and heart disease (Imani, 2022). In Indonesia, 21.6% of children are affected by stunting, or around 6.3 million. WHO's 2019 data reported a 36.4% prevalence in Indonesia, far exceeding the national target of 14% by 2024 (Bappenas, 2020).

Stunting poses significant challenges to Indonesia's economic growth and development goals. International research shows stunting could reduce GDP by 11% and decrease adult worker income by up to 20%. The long-term cognitive and physical impairments lead to lower productivity and competitiveness in the labour market, undermining Indonesia's vision of achieving a "Golden Indonesia 2045." Children suffering from stunting often face chronic health issues and diminished future economic well-being, perpetuating cycles of poverty and underdevelopment (Rokom, 2023). To meet the goal of a globally competitive workforce by 2045, addressing stunting is essential for creating high-quality human resources (Anggraini & Rahmawati, 2021).

A comprehensive, multidisciplinary approach is key to preventing stunting. This includes nutritional education for pregnant and breastfeeding mothers, supplementary feeding programs, and healthcare interventions for malnourished children. Hospitals are crucial in providing integrated care, offering clinical services, nutrition counselling, and rehabilitation, and acting as referral centres for severe cases. Hospitals work in collaboration with community health centres (puskesmas) to ensure early detection and ongoing care for at-risk children (Dewi & Hartono, 2020).

Health professionals in hospitals, including paediatricians, nutritionists, and nurses, play a central role in stunting intervention. Hospital management must develop training programs to equip medical staff with the skills to manage stunting effectively. Stunting interventions require collaboration among different disciplines, including psychologists and public health experts, to deliver comprehensive care. Hospitals have more resources, such as advanced medical equipment and specialized doctors, compared to community health posts

(posyandu), enabling them to offer in-depth evaluations and comprehensive treatment for severe stunting cases. They also monitor and evaluate the success of stunting interventions through integrated medical record systems, providing data that inform policy adjustments at both national and regional levels (Kemenkes RI, 2020).

The role of hospitals in stunting reduction goes beyond direct healthcare. They serve as centers for change by implementing policies and practices that support nutritional improvement. Hospital-based interventions, combined with collaboration across sectors, help accelerate the reduction of stunting cases. Hospitals are also instrumental in achieving national goals through cross-sector collaboration, education, and targeted nutritional interventions (Suharno, 2019). This integrated approach is vital to reducing stunting and improving Indonesia's human capital, ensuring long-term sustainable development aligned with the vision of "The Golden Indonesia 2045.

1.2 Problem Formulation

Problem Statement

1. How does hospital management in stunting interventions effectively support the reduction of stunting rates?
2. What is the relationship between hospital interventions in stunting and the acceleration of economic growth towards The Golden Indonesia 2045?
3. How does government policy support the role of hospitals in managing and handling stunting cases?
4. What are the main challenges hospitals face in implementing effective stunting interventions?

1.3 Research Objectives

1. **General Objective**: To analyze the role of hospital management in stunting interventions as a measure to accelerate economic growth towards The Golden Indonesia 2045.
2. **Specific Objectives**:
    a. To identify the most effective hospital management policies and strategies for addressing stunting.
    b. To examine the impact of stunting interventions in hospitals on public health and economic growth in Indonesia.

c. To explain the role of government policies in supporting stunting management in hospitals.
d. To identify the challenges faced by hospitals in addressing stunting.

1.4 Research Benefits

1. **For Healthcare Practitioners**: Provides information on effective hospital management strategies in stunting interventions for application in daily healthcare practice.
2. **For Policymakers**: Offers data and recommendations that can be used to formulate more effective policies in managing stunting in hospitals and economic policies that support growth through improved health quality.
3. **For Research and Education**: Provides a foundation for further research on stunting interventions and their economic impact, contributing to academic literature that can be used as a reference in the future.

1.5 Research Limitations

1. **Scope and Focus**:
    a. The focus of this research is on the role of hospital management in stunting interventions in Indonesia.
    b. The study will examine policies and interventions in hospitals within the national context of Indonesia, focusing on their impact on economic growth towards The Golden Indonesia 2045.
2. **Data Limitations**:
    a. The data used will be limited to official reports from hospitals, the Ministry of Health, and available literature.
    b. Limited access to real-time data from hospitals, which may not be fully representative.
    c. The research time frame is restricted, so it may not capture all the dynamics of policy or practice changes over the years.

LITERATURE REVIEW

2.1 Stunting

Stunting, a condition characterized by impaired physical and cognitive development due to chronic malnutrition, remains a pressing global health issue. Defined by the World Health Organization (WHO, 2019), it is most critical during the first 1,000 days of life from conception to two years of age. This early period is vital for brain development, immune function, and physical growth. Stunting can lead to severe consequences, both immediate and long-term. Children who suffer from stunting often exhibit delayed cognitive and motor development, reduced learning capacities, and a predisposition to metabolic disorders like diabetes and cardiovascular disease in adulthood (Dewey & Begum, 2011; Imani, 2022).

Stunting is measured by a length or height that is more than minus two standard deviations from the median child growth standard set by the World Health Organization (WHO). Factors contributing to stunting in toddlers include low birth weight (LBW), age, gender, mother's education level, economic status, and child health services, which are identified as risk factors causing stunting in toddlers (Tebi et al., 2021).

Stunting is still one of the problems that must be resolved to build a golden generation in 2045. Stunting is a form of demographic bonus that is detrimental to the country, because with high rates of stunting, Indonesia will experience short-term to long-term effects. The short-term effect of stunting is the high risk of morbidity and mortality, while the medium-term effect is that stunting survivors will experience a decrease in intelligence and cognitive abilities, and the long-term effect is a decrease in the quality of human resources and degenerative diseases in adulthood (Haratua, et al., 2023).

Globally, the prevalence of stunting has declined, but in low- and middle-income countries such as Indonesia, it remains a significant challenge. The rate of stunting in Indonesia stood at 21.6% in 2022, equivalent to 6.3 million children under five years of age (Bappenas, 2020). This is higher than the national and international targets set by the RPJMN (14% by 2024) and the Sustainable Development Goals (SDGs), underscoring the urgent need for targeted interventions. Tackling stunting in Indonesia is not only a public health priority but also an economic one, as the condition has far-reaching implications on the country’s future workforce and economic growth.

2.2 Hospital Management in Stunting Interventions

Hospitals are integral to managing stunting through multifaceted healthcare services, ranging from early detection and nutritional counseling to rehabilitation and advanced medical interventions. The role of hospitals in stunting management aligns with the Systems Theory of management, which posits that healthcare organizations are complex systems requiring coordinated, cross-functional approaches (Kast & Rosenzweig, 1972). Hospitals function as crucial hubs for stunting interventions, providing medical care, nutrition advice, and, importantly, training for healthcare professionals to recognize and treat stunting early (Kemenkes RI, 2020; Suharno, 2019).

Effective hospital management in addressing stunting involves the integration of diverse healthcare professionals, pediatricians, nutritionists, public health workers, and policy experts to create comprehensive stunting intervention programs. This collaborative approach is essential, as the problem spans several medical and social domains. Furthermore, hospitals must work in concert with local health centers (puskesmas) to ensure continuity of care, especially for early-stage interventions in communities (Dewi & Hartono, 2020).

Hospitals must implement programs to reduce the prevalence of stunting and wasting. Hospitals carry out nutritional interventions and management, as well as strengthen referral networks with lower-class hospitals and primary healthcare facilities (FKTP) in their regions, including referrals for nutritional issues. Hospitals must have programs aimed at reducing the prevalence of stunting and wasting within the hospital, including increasing the understanding and awareness of all staff, patients, and families about the issues of stunting and wasting, as well as implementing specific interventions and Rumah Sakit Sayang Ibu dan Bayi (RSIBB) intervention (Kementerian Kesehatan Republik Indonesia, 2022). Therefore, the role of nurses is crucial in improving the nutritional status of toddlers through promotive and preventive efforts, such as educating mothers of toddlers, providing training to health cadres, and conducting height and weight measurements (Pratiwi, 2020).

Nurses, as one of the professional care providers, are involved in developing clinical pathways using the nursing care process approach, which includes assessment, nursing diagnosis, planning, implementation, and evaluation (Lestari, et.al, 2023). A clinical pathway is a structured and integrated multidisciplinary care plan based on evidence to provide day-to-day management guidelines for patients with specific health conditions, aiming to organize and standardize clinical care effectively and efficiently (Lestari, et.al, 2023). Nurses need to

enhance their knowledge, skills, and abilities in implementing Panduan Asuhan Keperawatan (PAK) for stunting risk and clinical pathways in hospitals. The implementation of clinical pathways has a positive effect on improving the quality of healthcare services, increasing patient satisfaction, reducing variations in clinical care, lowering morbidity and mortality rates, and bridging the gap between clinical practice and evidence-based care (Lestari et al., 2023).

2.3 Government Policy and Its Influence on Stunting Management

Stunting is not merely a health issue; it is tied to broader socio-economic policies. Government policies that support nutrition, healthcare, education, and family welfare are integral to any stunting intervention strategy. Policies aimed at improving access to clean water, sanitation, and maternal health can drastically reduce stunting rates. For example, areas with well-implemented government policies have seen a marked reduction in stunting rates, demonstrating the critical role of policy in driving systemic change (Rokom, 2023). The present study confirms historic findings published already at the beginning of the 20th century that malnutrition cannot be considered “as the decisive factor in the undersize of the poor.” Socially, economically, politically and emotionally (SEPE) disadvantaged children are shorter than children from affluent background. Their shortness was not associated with clinical signs of malnutrition, nor with thinness, nor with delay in physical development. Quite in contrast, the association between body height and anthropometric indicators of the state of nutrition such as BMI, MUAC, skinfold thickness and two historic indicators of undernutrition, was weakest in the disadvantaged children, and strongest in the wealthy suggesting that the shortness in height of SEPE disadvantaged children is not associated with poor nutrition. Body height was associated with parental education. The hypothesis said that SEPE disadvantaged children show lower self-confidence, and consider their fathers’ social role as inferior, had to be rejected as our Western cultural concepts appear inappropriate when testing school children in West-Timor, Indonesia (Scheffler et al., 2021). Stunting is not a synonym of malnutrition, stunting is a synonym of social disadvantage and poor parental education (Scheffler et al., 2021).

In low and middle-income countries, the role of childhood growth restriction and stunting has been attracting particular attention which is likely a reflection of the fact that indicators of progress to address child undernutrition were included in the Millennium

Development Goals their inclusion in the post-2015 Sustainable Development Goals; and the suboptimal progress in many countries at achieving improvements in child nutrition. For example in South Asia, rates of childhood stunting remain at 38% despite rapid economic growth in some countries such as India. Advocacy for inclusion of child nutrition targets in the Sustainable Development Goals appeals to an emerging understanding of the consequences of failure to address early life undernutrition and the consequent impact of restriction of growth and developmental potential on both individuals and society as a whole. Incorporating markers of child nutrition into the new round of global development goals could prove beneficial in lowering stunting prevalence, not least by presenting an opportunity to build commitments to addressing this issue as part of a global policy platform (McGovern et al., 2017).

In Indonesia, government policies play a pivotal role in supporting hospitals and other healthcare institutions in combating stunting. The Public Health Policy Model by Walt and Gilson (1994) provides a framework to understand how various stakeholders, including the government, shape healthcare interventions. The Indonesian government's RPJMN and National Strategy for Stunting Reduction place hospitals at the core of efforts to decrease stunting rates by ensuring that sufficient resources, infrastructure, and training programs are available (Kemenkes RI, 2021). These policies enable hospitals to collaborate effectively with local health institutions and community-based programs, ensuring that stunting interventions are comprehensive and sustainable.

The stunting eradication policy in Undang-Undang No. 17 of 2007 concerning the Long-Term Development Plan (2005-2025) explained that food development and nutritional improvement are carried out in a cross-sectoral manner including production, processing, distribution, and consumption of food with adequate, balanced, and guaranteed nutritional content (Haratua, et al., 2023). This is reinforced by Peraturan Presiden No. 42 of 2013 on the National Movement for Nutrition Improvement, which was issued with the aim of supporting efforts of the participation and concern of stakeholders in a planned and coordinated manner to accelerate nutrition improvement in the first 1000 days of life (100 HPK).

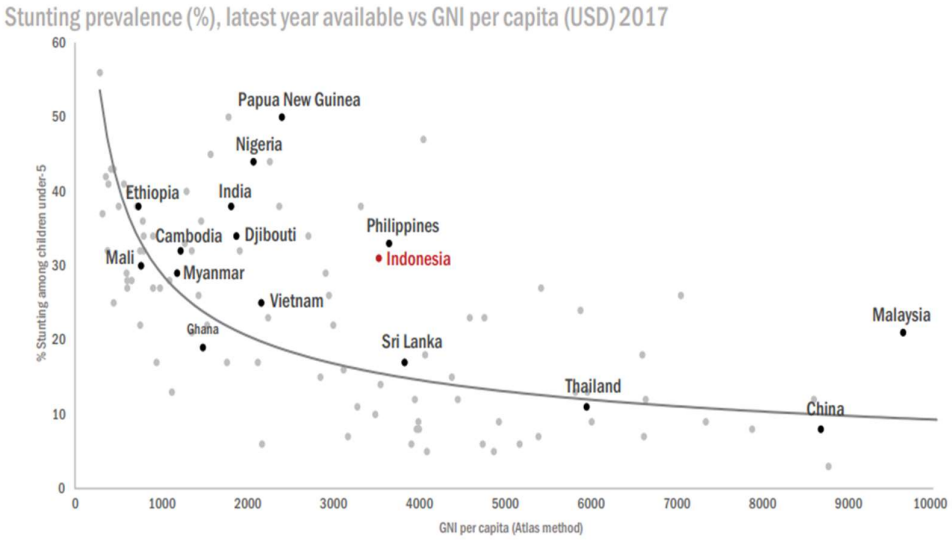
2.4 Economic Implications of Stunting

Stunting is not just a health issue; it has profound economic implications. Research by Hoddinott et al. (2013) found that stunting can reduce a country’s GDP by up to 11%, primarily

due to decreased labor productivity and higher healthcare costs. Stunted children, who often grow up to be less productive adults, contribute less to the economy and are more likely to incur higher medical costs over their lifetimes. In Indonesia, where achieving the vision of "The Golden Indonesia 2045" hinges on the development of a highly skilled and competitive workforce, stunting presents a significant barrier to economic growth and national development (Anggraini & Rahmawati, 2021).

While Indonesia has successfully decreased early childhood mortality, its stunting rates are among the highest in the world; this has lifelong consequences for health, human capital, poverty, and equity. Under-5 mortality has decreased from 97 to 32 per 1,000 live births between 1990 and 2017 with the greatest decrease occurring among rural and poorer households (Government of Indonesia, 2018). In contrast, Indonesia significantly underperforms on stunting. In 2019, nearly 8 million children under the age of five (or 27.7 percent) were stunted, that is, they were short for their age. This is higher than most regional and income-level peers and on par with fragile sub-Saharan African countries like Mali, Ethiopia, and Djibouti (Figure 1).

Figure 1. Indonesia significantly underperforms on stunting compared to regional and income-level peers

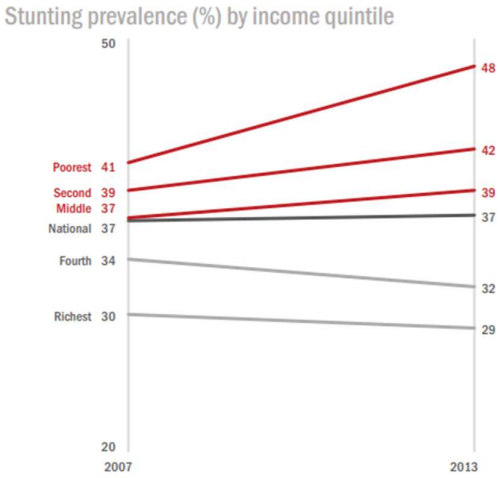


Source: World Bank (2019) World Development Indicators; Indonesia value from Riskesdas 2018

What is worse, not only are poorer children most at risk of stunting, but the gap is widening (Figure 2). Being stunted in early childhood is associated with reduced cognitive

development, lower learning and educational attainment, and substantially decreased adult productivity and wages (Sheker et al., 2017; Hafez et al., 2020). According to the latest human capital index, Indonesia's next generation will only be 53 percent as productive as it could have been with full health and complete education (World Bank, 2019; Hafez et al., 2020).

Figure 2. Poorer children are most at risk of stunting and the gap is widening



Source: Riskesdas, 2007 and 2013

The Vision of The Golden Indonesia 2045 outlines a strategic blueprint for transforming Indonesia into a developed and competitive nation by its centennial. A critical aspect of this vision is the development of human capital, which hinges on improving public health and addressing key issues like stunting. Stunting poses a significant obstacle to achieving this vision, as it can lead to lifelong cognitive and physical impairments that limit individual productivity and, by extension, national economic growth. By tackling stunting, Indonesia aims to cultivate a healthier, more capable workforce, essential for driving economic competitiveness and innovation on a global scale (Bappenas, 2020; Kemenkes RI, 2021).

Countries with high rates of stunting, such as those in South Asia and subSaharan Africa, should scale up policies and programmes aiming to reduce child undernutrition as cost-beneficial investments that expand the economic opportunities of their children, better allowing them and their countries to reach their full potential. However, economic growth as a policy will only be effective at reducing the prevalence of stunting when increases in national income are directed at improving the diets of children, addressing gender inequalities and

strengthening the status of women, improving sanitation and reducing poverty and inequities (McGovern, et al., 2017).

However, despite the policy focus on reducing stunting, there remain areas where the evidence is sparse. In particular, whereas there is an evidence base linking stunting to short-run outcomes in childhood such as cognition and educational attainment, evidence on the long-run effects is more limited. For example, cost-benefit analyses of nutrition interventions and reviews of potential wage losses associated with early life undernutrition tend to rely on calibrated estimates of returns to schooling, and the fact that children who are stunted have lower levels of educational attainment, rather than measures of the direct association between stunting and adult outcomes. It is important for policy makers to have accurate information on the long-run economic benefits associated with investments in child nutrition, particularly in contexts in which government resources are scarce or there is a high opportunity cost of funds due to attractive investment options in other domains such as education and infrastructure. If high-quality evidence demonstrates economic returns to reducing child stunting, this will make it easier to compare returns on investment with these alternatives on the basis of formal cost-benefit analyses (McGovern, et.al, 2017).

The Human Capital Theory by Becker (1964) explains how early health investments particularly in preventing conditions like stunting can yield significant economic returns. Healthier, better-nourished children are more likely to succeed academically, perform better in the workforce, and contribute to the country's overall economic productivity. Conversely, stunted individuals may experience reduced employment opportunities and lower earnings, thereby exacerbating poverty and inequality in society.

2.5 Vision of The Golden Indonesia 2045: Contribution of Stunting Management

As the fourth most populous country in the world and the tenth largest economy in terms of purchasing power parity, Indonesia aspires to become one of the top five global economies by 2045. While gross domestic product (GDP) measures national income or economic output, it does not reflect changes in the underlying asset base, for example, depreciation and depletion of natural resources – potentially sending misleading signals about the state of the economy. Instead, wealth measures the present and future value of a country's assets including natural capital, produced capital, and human capital, allowing for a better assessment of sustainable growth. Human capital, driven by population growth,

educational attainment, and the resulting increases in labor productivity and earnings, has been estimated to account for more than half of national wealth in Indonesia2 (Lange, Wodon, & Carey, 2018; Hafez, et al., 2020).

The government has implemented several policies, such as the National Strategy for Stunting Reduction and the National Medium-Term Development Plan (RPJMN), which focus on early intervention during the critical first 1,000 days of life. These strategies include enhancing healthcare infrastructure, promoting cross-sector collaboration, and improving maternal and child nutrition. By reducing the prevalence of stunting, Indonesia aims to increase labor productivity and ensure the creation of a "golden generation" by 2045 one that can contribute meaningfully to the nation's economic and social development (Bappenas, 2019; UNICEF, 2019).

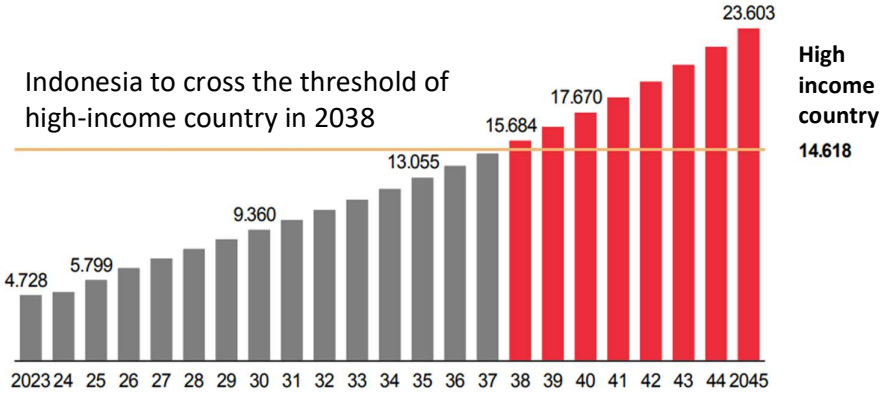


Figure 3. Indonesia's projected GDP per capita, 2023-2045, USD. The National Long-Term Development Plan (RPJPN) by Bappenas for 2025-2045 estimates that Indonesia will exit the middle-income category between 2038 and 2041.

Indonesia's projected economic growth by 2045, 100 years after independence, Indonesia is projected to be the world's 4th largest economy (based on PPP GDP) and 8th largest (by real GDP). This projected growth represents a 2.5-fold increase from the current real GDP of $1.1 trillion in 2022 (17th largest economy) to $2.8 trillion in the next 22 years. This direction of development is a big step for Indonesia, towards the Golden Indonesia of 2045. Based on these projections, Indonesia will become a high-income economy and exit the middle-income trap in 2038, in accordance with Bappenas' 2025-2045 RPJPN projection. By 2038, it is estimated that GDP per capita will surpass the threshold of a high-income economy at around $14,600, and reach $15,700 in 2038 (Figure 3) (KADIN, 2023).

Indonesia 2045 has a vision to become a resilient, prosperous, inclusive, and sustainable 'powerhouse' nation, as well as an 'inspirational lighthouse' of ASEAN. This journey should be guided by specific goals through four core pillars, namely 'resilient growth', 'prosperous economy', 'vibrant inclusive society', and 'sustainable development' (KADIN, 2023).

Vibrant inclusive society includes achieving a higher life expectancy of above 80 years for both men and women, reducing the under-5 mortality rate per 1,000 births and reducing the stunting prevalence rate to below 10% (KADIN, 2023).

RESEARCH METHODOLOGY

3.1 Literature Review Design

A literature review is a systematic examination of the literature on a topic. It critically analyzes, evaluates, and synthesizes research findings, theories, and practices by researchers and educational practitioners related to the focus area (Lasanthika, 2021). The design used in this literature review uses the Traditional Systematic Review method to evaluate and synthesize literature related to hospital management in stunting intervention to accelerate economic growth towards Golden Indonesia 2045. This review focuses on collecting, analyzing, and presenting information from various relevant and reliable sources.

The literature search process involved several systematic steps. Searches were conducted in various academic databases, such as PubMed, Google Scholar, Scopus, and government agency document databases. The keywords used included "hospital management," "stunting intervention," "economic growth," "Golden Indonesia 2045," and "public health management." The strategy used was based on the PRISMA protocol with a checklist for searching articles using the PICOS Framework, as shown in the table below.

Table 3.1 PICOS Format in this Literature Review

PICOS	Criteria
Population (P)	Studies focusing on children affected by stunting, as well as research involving the broader Indonesian population impacted by stunting,

	especially in relation to Indonesia's economic and health development towards Golden Indonesia 2045.
Intervention (I)	Stunting intervention, including nutrition programs, healthcare service enhancements, parental education, and public health initiatives targeting child growth
Comparators (C)	No comparator
Outcomes (O)	Literature focusing on outcomes such as stunting reduction, improved child health and nutrition, and the broader economic benefits linked to successful stunting interventions, particularly those contributing to economic growth towards Indonesia 2045.
Study Design (S)	Peer-reviewed articles, systematic reviews, policy papers, and case studies related to hospital management and stunting intervention

The search strategy was structured to cover literature published in 2020 through 2024 in English and Indonesian. Articles selected should be relevant to the study's focus on hospital management and public health interventions in stunting reduction and its impact on economic growth. The strategy also included articles that addressed hospital managerial strategies in stunting reduction, the impact of stunting reduction on child health, and the relationship between stunting reduction and economic growth.

3.2 Inclusion and Exclusion Criteria

At the beginning of the search results, hundreds of articles may be obtained, so it is necessary to have a criterion to homogenize the articles found to match the focus of the discussion (Lasanthika, 2021). The inclusion and exclusion criteria formulated by researchers are as follows:

A) Inclusion Criteria:

Studies included in this review must meet the following criteria:

- Topic: Studies should focus on hospital management and stunting interventions in the context of accelerated economic growth, particularly relevant to the goal of The Golden Indonesia 2045.

- Study Type: The included studies included quantitative and qualitative studies, literature reviews, and reports from health institutions relevant to stunting interventions and hospital management.
- Time Span: Studies published between 2020 and 2024 were considered to ensure the information used was up-to-date and relevant to the current situation.
- Language: Studies written in both English and Bahasa Indonesia will be included.
- Quality: Only studies of good quality, evaluated based on robust research methodology, validity of results, and relevance to the topic will be included.

B) Exclusion Criteria:

Some of the criteria used to exclude studies from this review include:

- Study Type: Opinion articles, commentaries, editorials, or studies that are not peer-reviewed will be excluded.
- Topic Relevance: Studies that do not directly address hospital management or stunting interventions or that are not linked to economic growth will be excluded.
- Quality: Studies with weak methodology, conclusions that are not supported by sufficient data, or are judged irrelevant to the context of The Golden Indonesia 2045 will be excluded from the review.

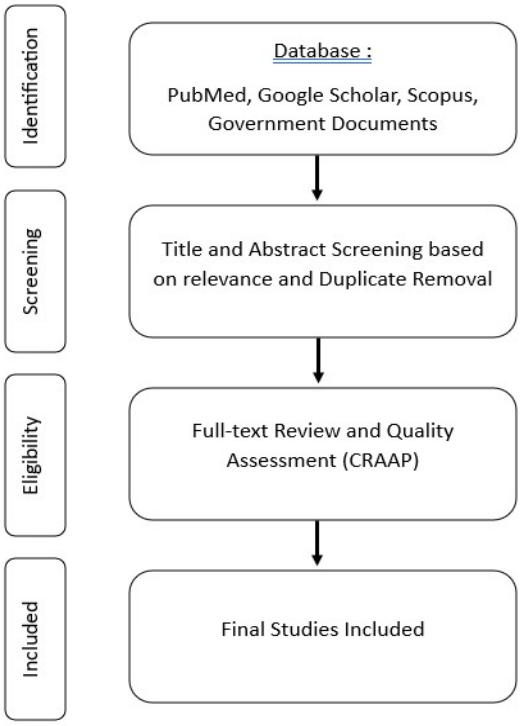
3.3 Selection and Evaluation Process

The literature selection process was conducted in several stages. First, a literature search was conducted using predefined keywords in various databases such as PubMed, Scopus, Google Scholar, and official databases of government agencies. Articles generated from this search were then selected based on title and abstract to assess their relevance to the topic under review, namely hospital management in stunting intervention and its impact on Indonesia's economic growth towards the Golden Indonesia 2045.

After the initial selection, the selected articles were further evaluated by reading the full text. Each study will be assessed based on the quality of its methodology, relevance of the topic, and contribution to providing insights into the role of hospital management in stunting intervention. Only studies that meet the inclusion criteria and are of good quality will be included in the final review. Each study selected for this review will be critically evaluated using the CRAAP method as follows (Kalidas et al., 2021)

- **Currency**: Prioritize recent studies, especially from the last five years, to ensure alignment with current policies and healthcare advancements related to hospital management, stunting intervention, and economic growth.
- **Relevance**: Focus on studies addressing the healthcare system's role in stunting, particularly in Indonesia or similar contexts. Broader health or nutrition studies may be included if relevant to hospital management and economic impact.
- **Authority**: Prioritize studies by credible healthcare professionals, economists, or researchers, and publications from peer-reviewed journals, government reports, and respected institutions for reliable data.
- **Accuracy**: Favor studies with strong statistical support, clear methodologies, and well-defined conclusions. Exclude those lacking data transparency or making unsupported claims.
- **Purpose**: Select studies with clear, unbiased objectives, avoiding research with promotional agendas or evident bias to ensure valid conclusions.

The results of the selection of study articles can be depicted in the Flow Diagram below:



Studies that fit the critical evaluation will be prioritized. The results of this evaluation will help determine whether the study can be used as the basis for recommendations in this literature review.

3.4 Data Synthesis Techniques

Findings from the relevant studies will be combined and synthesized using thematic analysis techniques. Thematic analysis is used to identify critical patterns or themes that emerge from the selected literature relating to the role of hospital management in stunting intervention and its impact on accelerating economic growth. Each study will be identified for its contribution to critical themes, such as the effectiveness of stunting interventions, hospital management strategies, and the economic implications of such interventions. The main focus will remain on integrating findings through a qualitative approach to gain an in-depth understanding.

The data collected from the various studies will be organized systematically to facilitate analysis and writing. Information will be organized based on the main themes identified through thematic analysis. Each study will be coded or categorized based on topic relevance, key findings, and study quality. Thematic tables or diagrams can visualize how each study contributes to the overall understanding of the topic under review.

In addition, study results will be grouped by intervention type, economic effect, and role of hospital management, allowing for more structured conclusions focused on critical findings.

RESULT AND DISCUSSION

4.1 The Impact of Stunting on Economic Growth

Stunting is not only related to height, but the most dangerous is the low ability of children to learn, mental retardation, and the emergence of chronic diseases. The results of the Indonesian Nutrition Status Survey (SSGI) show that the prevalence of stunting in Indonesia fell from 24.4% in 2021 to 21.6% in 2022. However, the decrease in stunting rates in 2023, which only decreased by 0.1%, namely 21.5%, requires special attention (SSGI Ministry of Health, 2024). One of the causes of the low stunting rate reduction is that an effective implementation model for the programme has not been found. The implementation of stunting prevention programmes in the field is not running optimally.WHO standards related to stunting prevalence must be less than 20%. Indonesia has set a target of 14% stunting prevalence in 2024. Infrastructure and various stakeholders must move together to

make it easier to solve the stunting problem. Starting from creating an environment with clean water, good sanitation, healthy homes, is an integrated and consolidated work effort.

Based on Gross Domestic Product (GDP) at current prices in the first quarter of 2024 (BPS Statistics Indonesia, 2024), Indonesia's economy reached IDR5,288.3 trillion and IDR3,112.9 trillion at constant prices (2010). Indonesia's economy grew by 5.11 percent in the first quarter of 2024, compared to the first quarter of 2023 (y-on-y). Public Administration and Defence; Compulsory Social Security experienced the highest growth at 18.88 percent, on the production side. Meanwhile, the Nonprofit Institutions serving Households Final Consumption Expenditure (NPISHs FCE) component experienced the highest growth at 24.29 percent on the expenditure side.Research from McGovern et al. (2017) reflect the potential impact of individual undernutrition on individual economic outcomes. The pathways linking stunting to individual income have been discussed.

However, individual-level estimates do not take account of effects on aggregate capital formation, labour markets, savings behaviour, investment behaviour and other factors which make up the determinants of aggregate output. Estimating the full costs of undernutrition to society requires accounting for all of these potential effects. However, whereas height and wages tend to be correlated at the aggregate level, in the literature there has been surprisingly little attention paid to spillover effects of stunting on economic growth. The potential for these effects can be informed by considering the standard approach in macroeconomic growth models where national income is defined as a function of labour, capital and the efficiency with which labour and capital inputs are combined (or technological progress).From this perspective, the pathways through which undernutrition could affect aggregate economic growth include increases in morbidity, mortality and health expenditure and subsequent reductions in human capital investment (for example, education), physical capital investment and labour supply. Reductions in productivity because of ill health or work capacity for any given labour supply, and reductions in human capital and technological progress (due to lower levels of educational attainment and infrastructure) are likely to negatively impact not only on individuals themselves, but also on economic growth when a substantial proportion of a country's population are affected by stunting. Other relevant pathways include the impact of undernutrition on chronic disease, which would involve the diversion of productive savings (which boost investment) towards treatment costs.These pathways are summarized in Figure 4.

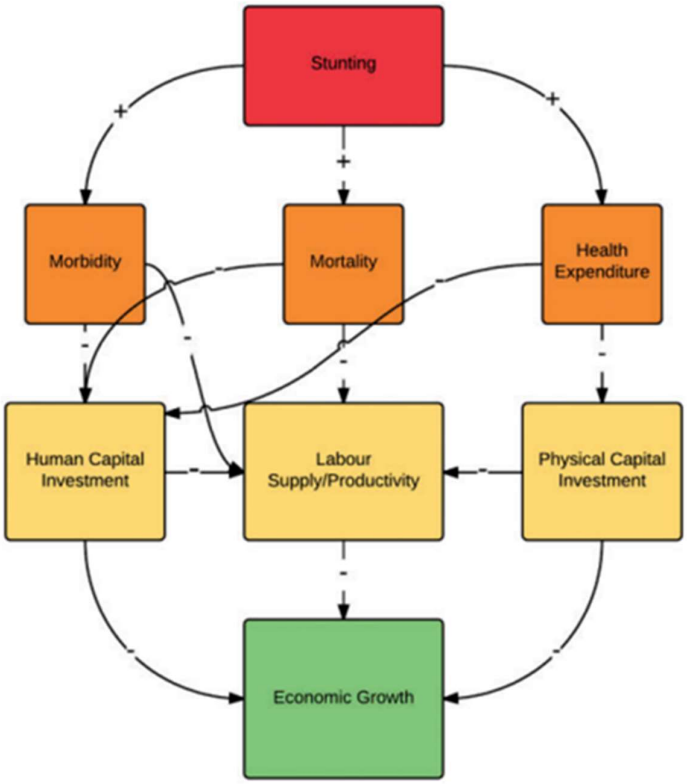


Figure 4. Summary of the pathways linking stunting to economic growth.

There is a literature in economics which examines whether there is an effect of health on economic growth. However, there are relatively few studies that consider undernutrition specifically (either childhood undernutrition or adult undernutrition) as an input in these production function models of the aggregate economy. One of the reasons for the high rate of stunting in Indonesia is the high infant and maternal mortality. The poor nutritional status of toddlers causes more than half of infants and under-five (U5) to die. Poverty and undernutrition have a relationship with each other.

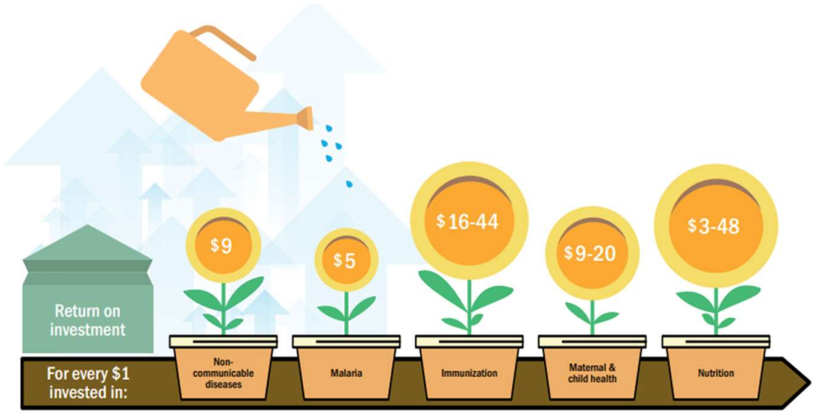
Stunting Prevention Program and Policies Related Indonesia's stunting percentage is higher than several Southeast Asian countries, such as Vietnam (23%), the Philippines (20%), Malaysia (17%), and Thailand (16%). WHO ranks Indonesia fourth in the world and second in Southeast Asia regarding the number of stunted children under five (WHO, 2022). One thing that must be understood is that stunting can be overcome so as not to become stunted or corrected in the first hundred days of life. When a baby is born up to two years old, modifications and interventions can still be made so they do not become stunted. So, reducing the prevalence of stunting is a government super priority program with a target of

3-3.5% annually, so a maximum of 14% in 2024. Undernutrition is, directly and indirectly, responsible for 60% of deaths in toddlers, and more than two-thirds of deaths occur in children less than one year old (Solomon & Tigabu, 2008; Suryana & Azis, 2023). Developing countries need high quality human resources and have a high production value.

Stunting cases continue to increase, along with the high risk of undernutrition, the increasing prevalence of malnutrition, and decreasing productivity. If this condition is not handled correctly, it can affect Indonesia's development performance, inequality, and poverty. Stunting can hinder economic growth and labor productivity, affecting 11% of GDP (gross domestic product) and reducing the income of adult workers by up to 20%. Based on this, it is necessary to make prevention and control efforts in nutrition intervention activities an economic investment. Study from Suryana & Azis (2023) about potential economic loss due to stunting in Indonesia estimates the economic potential lost due to stunting in children under five. This descriptive study is based on processing secondary data from various related agencies with Konig's formula and correction factors from Horton's study. The results of this study show that the incidence of stunting in children under five in Indonesia in 2021 was 24.4%. Nationally, Indonesia has the potential for economic loss due to stunting in toddlers, which ranges from IDR 15,062 to IDR 67,780 billion. These are equivalent to a range of 0.89-3.99% of the total GDP in 2021 (IDR 16,970.8 trillion).

4.2 Hospital Management on Stunting Prevention

Stunting prevention programs and policies are essential for comprehensively addressing stunting. The Ministry of Health conducts specific interventions through two main ways, namely nutritional interventions for mothers before and during pregnancy, and interventions for children aged six to two years. Presidential Decree number 72 of 2021 concerning the Acceleration of Stunting Reduction with 5 pillars. The first pillar is commitment, the second pillar is stunting prevention, the third pillar is convergence, the fourth pillar provides good food, and the fifth pillar innovates breakthroughs and good data. The Ministry of Religious Affairs issued a policy for three months before marriage, prospective brides must be examined first if there is anaemia and malnutrition, they are encouraged to postpone pregnancy first for the health of the mother and baby until nutrition is fulfilled.



Source: Authors' rendering from G.Yamey, N. Beyeler, H. Wadge, D. Jamison,. Investing in Health: The Economic Case, Doha, Qatar: World Innovation Summit for Health, 2016.

Figure 5. Investing in nutrition has the highest economic returns among health interventions

Suryana and Azis (2023) mentions some critical programmatic and policy approaches related to stunting prevention are: (1) Implementing nutrition interventions during the critical 1,000-day window, from pregnancy to a child's second birthday. These interventions can include promoting exclusive breastfeeding, providing nutritious complementary foods, and ensuring adequate nutrient intake through targeted supplementation, (2) Improving maternal health and nutrition is vital to stunting prevention. Policies should promote adequate prenatal care, maternal nutrition, and access to essential health services for pregnant women, (3) Implementing programs that provide targeted supplementation of crucial micronutrients, such as iron, vitamin A, and zinc, can reduce stunting. These interventions can be delivered through antenatal care, immunization platforms, or community-based programs, (4) Integrated Early Childhood Development (ECD) Programs: ECD programs that address multiple aspects of child development, including health, nutrition, education, and psychosocial support, play a crucial role in stunting prevention. Policies should support the integration of ECD interventions into existing health and education systems, (5) Access to clean water, improved sanitation facilities, and proper hygiene practices are essential for preventing infections and reducing the risk of stunting. Policies should focus on improving WASH infrastructure, promoting hygiene behavior change, and ensuring equitable access to these services, (6) Policies that support sustainable agricultural practices promote diversified and nutritious food production and strengthen food value chains can improve access to nutritious food and reduce stunting rates, (7) Strengthening health systems is crucial for delivering effective stunting prevention interventions. It includes improving the capacity

of healthcare providers, ensuring the availability of essential medicines and supplies, and strengthening health information systems for monitoring and evaluation, (8) Social Protection and Poverty Alleviation: Implementing social protection programs, such as conditional cash transfers, school feeding programs, and targeted nutrition support for vulnerable populations, can help address the underlying causes of stunting related to poverty and food insecurity, (9) Developing and implementing behavior change communication strategies is essential for promoting optimal infant and young child feeding practices, improved hygiene behaviors, and other preventive measures related to stunting, (10) Establishing robust monitoring and evaluation systems, including systematic data collection and analysis, helps track the progress of stunting prevention programs and policies. Additionally, investing in research to generate evidence on effective interventions and their impact is crucial for informing future policies and programmatic strategies. Besides that, because the stunting prevalence rate changes yearly, updating the data is needed for information for policymakers.

Hospitals play a central role in stunting prevention efforts through the provision of integrated health services, from early detection to rehabilitation. Effective hospital policies in dealing with stunting are strongly influenced by a multidisciplinary approach involving various parties, such as pediatricians, nutritionists, nurses, and health care professionals. Hospitals function as health service centers that provide various nutritional interventions to reduce stunting. These interventions include nutrition services, medical care, and training for health workers to detect and treat stunting cases early. In addition, hospitals must also collaborate closely with primary health facilities, such as community health centers, to expand the reach of interventions at the community level. Hospitals must also increase the capacity of their medical personnel through training, especially for nurses who play a role in promotion and prevention by educating mothers of children under five and conducting nutritional monitoring (Pratiwi, 2020).

Hospitals play an important role in providing direct health services and supporting nutrition interventions for children at risk of stunting. Evidence-based clinical pathways are one of the clinical management tools used in hospitals to provide efficient and targeted care. This pathway harmonizes multidisciplinary treatments ranging from nurses, pediatricians, to nutritionists in treating stunting cases holistically (Lestari et al., 2023). Hospitals are also involved in promotion and prevention through health education aimed at parents, especially pregnant and lactating mothers, and children. Through the Rumah Sakit Sayang Ibu dan Bayi

(RSIBB) programme, the hospital focuses on improving maternal and infant health during the first 1,000 days of life (HPK) to prevent stunting. Nutrition education and monitoring for pregnant women and toddlers is very important, considering that the 1,000 HPK is a critical period for child growth.

Hospitals should collaborate with community health centers (Puskesmas) and primary healthcare facilities (FKTP) to expand the reach of interventions at the community level. This synergy ensures continuous services from prevention, early detection, to handling stunting. This collaboration is also important in strengthening the referral system, especially in cases of severe malnutrition or stunting that require further treatment at the hospital (Dewi & Hartono, 2020).

Digital transformation with the use of technology in monitoring maternal and child health and collaboration between institutions. For example, the e-HDW (Electronic Human Development Worker) application version 2.0 is still in use and has been updated to improve its functionality for data collection and monitoring of stunting interventions in Indonesia. This application, developed by the Ministry of Villages with support from the World Bank, plays an important role in planning, implementing and evaluating stunting prevention programmes at the village level. The app empowers cadres and communities to be actively involved in stunting prevention programmes. This collaboration aims to create a comprehensive approach that can reduce the prevalence of stunting more significantly and evenly (Kemenkes RI, 2021).

Despite their crucial role, hospitals face several challenges in implementing effective stunting interventions: (1) Inadequate Access to Healthcare Services in Remote Areas: Many rural and remote regions lack easy access to hospitals equipped to handle stunting cases. This geographical barrier hampers the early detection and treatment of stunting in areas that need it the most. (2) Limited Human Resources and Expertise: Many hospitals, especially in less developed regions, suffer from a shortage of trained healthcare workers specialized in pediatric nutrition and stunting intervention. Insufficient training and lack of awareness among healthcare professionals reduce the effectiveness of stunting programs. (3) Lack of Awareness and Cultural Barriers: Some communities have limited knowledge or awareness regarding stunting prevention and the importance of maternal and child nutrition. Cultural practices and misconceptions can hinder the implementation of hospital-led interventions, as families may not prioritize hospital visits or adhere to medical advice. (4) Resource

Constraints: Hospitals, particularly in rural areas, often face budgetary constraints that limit their ability to implement large-scale stunting interventions. Without sufficient funding, hospitals struggle to provide consistent outreach programs, advanced equipment, or nutritional supplements needed for effective stunting reduction.

Overcoming these challenges requires stronger government support, investment in healthcare infrastructure, and continuous public health education programs to ensure hospitals can effectively contribute to stunting reduction efforts.

CONCLUSION

Hospital management plays a critical role in reducing stunting through integrated services, clinical pathways, and the implementation of advanced health monitoring. By ensuring comprehensive healthcare for mothers and children, hospitals provide early diagnosis, treatment, and continuous monitoring of nutritional status. Hospitals also engage in multidisciplinary interventions, where pediatricians, nurses, nutritionists, and public health experts collaborate to deliver holistic care. This structured approach helps identify and address factors contributing to stunting early, ensuring more effective interventions that improve child growth outcomes.

Furthermore, hospitals manage outreach programs that educate communities on proper nutrition and the significance of the First 1,000 Days of life, a critical period for preventing stunting. These educational initiatives help bridge gaps in awareness and empower families with knowledge on child nutrition, directly contributing to the reduction of stunting rates. Through continuous collaboration with primary healthcare centers and the government, hospital management ensures that stunting interventions are scaled and sustained across communities.

The relationship between hospital interventions in stunting and economic growth is profound. Stunting affects cognitive development, educational outcomes, and productivity in adulthood, which ultimately hampers economic growth. By reducing stunting, hospitals contribute to the development of a healthier, more productive future workforce. Lower stunting rates lead to improved physical and cognitive health, which increases individuals' potential to contribute effectively to the economy.

The Golden Indonesia 2045 vision aims to leverage the demographic dividend, which is achievable only if the youth are healthy and well-nourished. Hospital interventions are key to ensuring that children today grow into adults capable of driving innovation, entrepreneurship, and economic development. By addressing stunting, hospitals are directly investing in human capital, laying the groundwork for long-term economic stability and growth. When children are healthier, they achieve higher education levels and are more likely to contribute meaningfully to the labor market, thereby accelerating economic growth.

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REFERENCES

Anggraini, A., & Rahmawati, R. (2021). The role of hospitals in combating stunting towards The Golden Indonesia 2045. *Journal of Health and Development, 12*(2), 45-58.

Anggraini, Y., & Rachmawati, Y. (2021). Preventing stunting in children. In *Proceedings of the 5th International Conference on Early Childhood Education (ICECE 2020)* (pp. 203–206). Atlantis Press. https://doi.org/10.2991/assehr.k.210322.044

Badan Perencanaan Pembangunan Nasional (Bappenas). (2019). *Vision of Indonesia 2045: Strategy and development pathways.* Ministry of National Development Planning (Bappenas). https://www.bappenas.go.id

Badan Perencanaan Pembangunan Nasional (Bappenas). (2020). *Rencana Aksi Nasional Penurunan Stunting.* Kementerian Perencanaan Pembangunan Nasional/Badan Perencanaan Pembangunan Nasional.

Badan Perencanaan Pembangunan Nasional (Bappenas). (2020). *Strategic planning for stunting reduction in Indonesia: RPJMN 2020-2024.* Ministry of National Development Planning (Bappenas). https://www.bappenas.go.id

Badan Pusat Statistik (BPS). (2023). *Stunting prevalence data and economic outlook 2023.* https://www.bps.go.id

Bank Indonesia. (2023). *Indonesia's GDP growth projection for 2024.* https://www.bi.go.id

Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education.* University of Chicago Press.

Dewey, K. G., & Begum, K. (2011). Long-term consequences of stunting in early life. *Maternal & Child Nutrition, 7*(3), 5-18. https://doi.org/10.1111/j.1740-8709.2011.00349.x

Dewi, N., & Hartono, B. (2020). Pengaruh intervensi gizi terhadap penurunan angka stunting di Indonesia. *Jurnal Gizi dan Kesehatan Masyarakat, 15*(2), 135-142.

Dewi, N., & Hartono, S. (2020). Hospital management strategies in addressing stunting in Indonesia. *Journal of Public Health Management, 16*(4), 78-95.

Hafez, R., Pambudi, E. S., & Agustina, C. D. R. D. (2020). *Spending better to reduce stunting in Indonesia.* World Bank, Kementerian Keuangan.

Hoddinott, J., Maluccio, J. A., Behrman, J. R., Flores, R., & Martorell, R. (2013). The economic cost of stunting and its implications for economic productivity. *The Lancet, 382*(9891), 129-140. https://doi.org/10.1016/S0140-6736(13)60996-2

Imani, T. (2022). Stunting and its impact on child development: A review of evidence. *Journal of Pediatric Research, 10*(2), 123-134.

Kamar Dagang dan Industri Indonesia (KADIN Indonesia). (2023). *Peta jalan Indonesia Emas 2045: "Membangun masa depan Indonesia, mulai hari ini".*

Kast, F. E., & Rosenzweig, J. E. (1972). General systems theory: Applications for organization and management. *Academy of Management Journal, 15*(4), 447-465. https://doi.org/10.5465/255141

Kementerian Kesehatan Republik Indonesia (Kemenkes RI). (2020). *Strategic guidelines for stunting reduction in hospitals.* Ministry of Health, Indonesia. https://www.kemkes.go.id

Kementerian Kesehatan Republik Indonesia (Kemenkes RI). (2020). *Standar pelayanan gizi pada rumah sakit.* Ministry of Health, Indonesia.

Kementerian Kesehatan Republik Indonesia (Kemenkes RI). (2021). *Rencana Aksi Nasional Penurunan Angka Stunting Indonesia 2021-2024.* Ministry of Health, Indonesia.

Kementerian Kesehatan Republik Indonesia (Kemenkes RI). (2022). *Peraturan Presiden No. 72 Tahun 2021 tentang Percepatan Penurunan Stunting.* Ministry of Health, Indonesia. https://peraturan.bpk.go.id/Home/Details/166243/perpres-no-72-tahun-2021

McGovern, M., Krishna, A., Aguayo, V. M., & Subramanian, S. V. (2017). A review of the evidence linking child stunting to economic outcomes. *International Journal of Epidemiology,* 1–21.

Rokom, D. (2023). Analyzing the decline in stunting rates and future strategies. *Health Development Journal of Indonesia, 13*(1), 12-25.

Scheffler, C., Hermanussen, M., Soegianto, S. D. P., Homalessy, A. V., Touw, S. Y., Angi, S. I., ... & Pulungan, A. B. (2021). Stunting as a synonym of social disadvantage and poor parental education. *International Journal of Environmental Research and Public Health, 18*(3), 1350. https://doi.org/10.3390/ijerph18031350

Solikhah, A., & colleagues. (2022). Peranan protein hewani dalam mencegah stunting pada anak balita. *Jurnal Riset Sains Terapan, 3*(2). https://jurnalnasional.ump.ac.id/index.php/JRST/issue/view/687

Suharno, D., & Setiawan, B. (2019). Peran rumah sakit dalam penurunan angka stunting melalui intervensi gizi dan pendidikan masyarakat. *Jurnal Gizi dan Kesehatan Masyarakat, 14*(1), 12-20.

Suharno, J. (2019). The role of hospital leadership in stunting intervention programs in Indonesia. *International Journal of Healthcare Management, 23*(2), 189-197.

Tebi, D., Wello, E. A., Safei, I., Rahmawati, J. S., & Kadir, A. (2021). Literatur review faktor-faktor yang mempengaruhi stunting pada balita. *Fakumi Medical Journal.* https://fmj.fk.umi.ac.id/index.php/fmj/article/view/70

United Nations Children's Fund (UNICEF). (2019). *The state of the world's children 2019: Children, food, and nutrition.* UNICEF. https://www.unicef.org

Walt, G., & Gilson, L. (1994). Reforming the health sector in developing countries: The central role of policy analysis. *Health Policy and Planning, 9*(4), 353-370. https://doi.org/10.1093/heapol/9.4.353

World Bank. (2019). *The human capital project: Indonesia.* World Bank. https://www.worldbank.org/en/country/indonesia/brief/human-capital-project

World Health Organization (WHO). (2019). *Global report on child malnutrition and stunting.* WHO. https://www.who.int