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Stunting Policy from a Social Aspect Perspective: A Systematic Literature Review

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ABSTRACT: Stunting is a global health issue with significant impacts on the growth and development of children, particularly in developing countries. This problem is not only related to nutritional aspects but also involves social factors, which play a crucial role in the success or failure of stunting intervention policies. This study aims to systematically review the literature on stunting policies from a social perspective, covering the period from 1990 to 2024. Through the Systematic Literature Review (SLR) method, 273 relevant articles from various countries were analyzed. The review shows that the trend of stunting policies that consider social aspects has evolved over time, with an increasing focus on policies related to community empowerment and gender-based interventions in recent studies. Attention to the social aspects of stunting policies has grown in recent years, especially during the pandemic, which has also influenced social welfare *KEYWORD :Stunting, Policies, Social*

I. INTRODUCTION

Stunting is one of the most urgent public health issues (Hasan & Muhammad, 2024; Ali, 2021; Ponum et al., 2020; Fenn et al., 2012) globally, especially in developing countries. This condition occurs when children suffer from chronic malnutrition during pregnancy or early life, which impacts their physical growth and brain development. Children with stunting are significantly shorter than the standard height for their age (De Onis & Branca, 2016; Hermanussen, 2016; Rachmi et al., 2016; WHO, 2006) and often experience delays in motor and cognitive development. This condition is more than just a physical issue; stunting reflects a multidimensional problem involving health (Mzumara et al., 2018), economic, social, and cultural factors. In many cases, stunting results from the complex interplay of poverty, lack of access to healthcare, inadequate parenting practices, and poor living conditions.

In developing countries, the prevalence of stunting tends to be higher than in developed nations. One of the primary causes is limited access to nutritious food, particularly among poor households. Additionally, malnutrition during pregnancy and poor maternal health contribute to the birth of children at risk of stunting. Children born with low birth weight or malnutrition during the first two years of life are at greater risk of stunting. This critical period, known as the "1000-day window of opportunity," is crucial for ensuring children receive adequate nutrition and proper care to grow optimally.

Stunting not only affects individual health but also has widespread impacts on social development, including social justice (Chaufan, 2007), economics, and overall community well-being. Stunted children are more vulnerable to infectious diseases, metabolic disorders, and other health issues. Furthermore, cognitive limitations resulting from stunting hinder their academic achievements, ultimately affecting their job prospects and productivity in adulthood. Studies indicate that individuals who experience stunting during childhood are more likely to earn lower wages and have a lower quality of life compared to those who grow normally.

From an economic perspective, stunting imposes a significant financial burden on both families and nations. Addressing health problems related to stunting, such as recurrent infections or developmental delays, requires considerable financial resources. Additionally, reduced productivity in adulthood impacts household income, perpetuating the cycle of intergenerational poverty. On a broader scale, stunting can slow national economic growth. When a significant portion of the population cannot fully participate in the labor market, national productivity declines, and opportunities to improve overall societal welfare become limited.

Therefore, addressing stunting has become a critical priority in global health policy. International organizations such as the World Health Organization (WHO), UNICEF, and the World Bank have set targets to significantly reduce stunting worldwide in the coming decades. Proposed strategies include improving nutrition interventions, increasing access to maternal and child healthcare services, enhancing sanitation and clean water access, and educating families on the importance of nutrition and health. These collaborative efforts aim to reduce stunting prevalence and ensure children have the opportunity to grow and develop optimally.

However, in practice, addressing stunting is not always straightforward. One of the biggest challenges is the lack of understanding of the social and cultural factors influencing stunting. In some societies, cultural norms or inherited dietary practices often conflict with recommended health practices, including the belief that malnutrition is natural and unavoidable (Chary et al., 2013). For example, in many communities, nutritious foods may not be available or considered suitable for young children, while practices such as early introduction of solid foods or unbalanced diets persist. Without approaches that consider social and cultural contexts, stunting policies may not be effective or sustainable.

Additionally, gender inequality plays a significant role in stunting issues. In many developing countries, women often have limited access to education, employment, and healthcare services. This condition affects mothers' ability to provide adequate nutrition and optimal care for their children. Therefore, empowering women through education, improving access to healthcare services, and providing economic support are key elements in reducing stunting. Policies that focus on women's empowerment not only improve child health but also have long-term benefits for family and community welfare (Thomas & Sridevi, 2022).

Moreover, environmental conditions also contribute to the prevalence of stunting. Limited access to clean water and poor sanitation can increase the risk of infections and diarrhea, which, in turn, worsens children's nutritional status. In some areas, families living in unsanitary environments often face nutritional issues despite the availability of nutritious food. Community-based interventions focusing on improving sanitation and access to clean water are one way to reduce stunting risks in vulnerable environments.

In conclusion, addressing stunting requires a comprehensive and multisectoral approach. Not only are appropriate health and nutrition interventions needed, but policies must also consider the social, economic, and cultural factors affecting children's development. Collaboration between governments, international organizations, and local communities is essential to ensure that interventions are effective and sustainable. By addressing these various dimensions, we can reduce the prevalence of stunting and create a better future for the next generation.

II. METHODOLOGY

The method used in this research is descriptive bibliometric analysis based on publication data related to the topic of Certified Independent Farmers in Sustainable Plantation from 1990 to 2024, with a focus on social aspects and a document limit of 273 publications. Data collection was conducted by retrieving publications indexed in Scopus, which were stored in RIS (Research Information Systems) format. The data were then input into VOSviewer software to visualize bibliometric relationships across three categories: network visualization, which shows the strength of relationships between research terms; overlay visualization, which highlights the concentration or emphasis of particular research clusters. This method aids in mapping the pattern of relationships between studies to identify trends and key areas. Bibliometric analysis, as a statistical method applied to scientific literature, enables accurate mapping of researcher names, productivity, publication years, and research trends. The mapping generated by VOSviewer provides a strong foundation for conducting thorough and in-depth content analysis, allowing researchers to understand the dynamics of research in specific fields, including the context of information architecture trends and other related studies

Network Visualization

The network visualization highlights the complex relationships between various topics related to stunting intervention policies, particularly in social, economic, and nutritional aspects. Each cluster in this visualization groups related keywords, enabling us to identify key themes in the discourse on stunting. This image illustrates that addressing stunting requires a multisectoral approach that includes interventions across various fields, such as government policies (Boccanfuso & Bruce, 2013), food security, household nutritional status, maternal education, and social inequality. Each of these aspects is interrelated, forming a network of factors that influence the prevalence of stunting in a region.

The first cluster, marked in red, shows the interconnection between government policies, food security, and socioeconomic challenges in addressing stunting. Keywords such as government, food security, challenge, and investment are the main focus of this cluster, indicating that government-driven policies are essential in tackling stunting. Governments play a central role in formulating and implementing policies aimed at ensuring the availability and access to nutritious food. The success of these policies heavily depends on the government's commitment to addressing challenges related to poverty and unequal access to food, which are the root causes of stunting in many developing countries. Moreover, effective advocacy is crucial to reducing stunting among children born at an early age (Shepard, 2011).

This red cluster also emphasizes the importance of monitoring and evaluation in stunting intervention policies. Monitoring and evaluating government-launched programs are critical to ensuring the effectiveness and sustainability of such policies. Keywords like sanitation and environment in this cluster highlight that stunting is not only a matter of nutrition but also closely linked to environmental conditions and access to adequate

sanitation. Therefore, governments need to integrate efforts to improve sanitation infrastructure and hygiene into their stunting intervention strategies, especially in communities most vulnerable to these issues.

The green cluster on the right side of the visualization emphasizes the relationship between nutritional status, household conditions, and social inequality. Keywords such as nutritional status, household, inequality, and maternal education suggest that the socioeconomic conditions of families and maternal education play a critical role in determining the nutritional status of children. Factors such as family income, education (Smith & Haddad, 2015), and access to healthcare significantly influence a household's ability to provide adequate nutrition for their children. Inequalities in access to these resources lead to higher stunting prevalence among disadvantaged groups, thus policies focusing on reducing socioeconomic disparities are essential.

One significant finding from this green cluster is the role of maternal education in preventing stunting. Educated mothers are more likely to have better knowledge of child nutrition and health and are more capable of accessing the necessary healthcare services during pregnancy and early childhood. Therefore, policies that support women's education and improve access to healthcare for women can significantly reduce stunting rates. Additionally, focusing on maternal education will enhance the overall quality of childcare and health maintenance, which are crucial components of healthy growth.

This green cluster also highlights social inequality as a major factor exacerbating stunting. The keyword inequality appears as a significant term, indicating that children from poor families or marginalized communities often do not receive adequate nutrition or healthcare. This creates a cycle of poverty that further worsens the stunting problem for the next generation. Thus, policies aimed at addressing inequality, such as direct aid to poor households, improving healthcare access, or nutrition education programs, are essential to breaking this cycle.

The blue cluster at the top of the visualization shows the relationship between stunting risk and demographic data, including factors such as age and gender. Keywords like age, risk, boy, and girl indicate that stunting risk may vary based on demographic factors. For example, a child's age is crucial in determining the risk of stunting, with the first two years of life being a critical period where nutritional interventions must take place. Moreover, differences in stunting prevalence between boys and girls may also be linked to sociocultural factors, such as gender preferences in food distribution or healthcare access. This analysis also reveals the importance of demographic data in understanding stunting prevalence across different population groups. Keywords such as association and sample highlight the importance of data-based research in evaluating the impact of policy interventions on at-risk groups. Effective policies must therefore be grounded in strong empirical evidence and consider the diversity of risk factors within populations. These data are also critical for identifying the most vulnerable groups to stunting and designing more targeted interventions.

The interconnectedness of the red, green, and blue clusters illustrates the complexity and interrelated nature of stunting. For example, policies focused on improving food security (red cluster) must also consider factors of social inequality (green cluster) and demographic risks (blue cluster) to succeed. Integrating these elements is vital for creating a holistic approach to addressing stunting. Cross-sectoral collaboration between governments, health agencies, civil society organizations, and local communities is necessary to develop comprehensive and effective policies.

In summary, this visualization reinforces that addressing stunting cannot be achieved through a single approach. Various factors such as government policies, household nutritional status, maternal education, social inequality, and demographic risks must all be considered when designing effective interventions. Only with an integrated approach can we hope to reduce stunting prevalence and provide a better future for the next generation

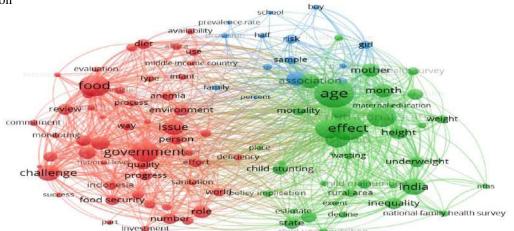


Figure 1: Network Co-occurrence Visualization

In the context of addressing stunting, monitoring and evaluation of existing policies are crucial steps to ensure that these policies truly reach the most vulnerable groups, such as poor households and children at risk of malnutrition. Without ongoing monitoring, it is challenging to assess whether the implemented programs are generating positive impacts in the community. Therefore, continuous monitoring must be integrated into every phase of policy implementation to identify and address any emerging challenges or changes in the field in a timely manner.

Careful evaluation is also essential to measure the extent to which these policies have achieved the desired outcomes. Through evaluation, governments and stakeholders can understand whether interventions such as food aid distribution, nutrition education programs, and access to healthcare services have successfully reduced stunting prevalence. If the expected results are not achieved, evaluation enables adjustments to strategies or approaches for better policy outcomes. In this context, data visualization can be a highly effective tool for understanding the situation comprehensively and providing a clear picture of areas requiring further attention. Visualization allows us to see where stunting rates remain high, regions with serious food security issues, or areas still lacking access to healthcare services. This enables policymakers to make more data-driven decisions and target interventions more effectively.

Improving food security is one of the main components of addressing stunting, especially in economically challenged regions. Limited access to nutritious food directly affects children's development, leading to chronic malnutrition. By strengthening food security systems through food aid, household economic empowerment programs, and increasing local food production, policies can significantly impact breaking the cycle of poverty rooted in malnutrition.

In addition, social inequality exacerbates the stunting issue. Children from poor families or those living in remote areas often lack equal access to adequate healthcare services and nutrition education. Effective policies must aim to reduce these inequalities by expanding access to health and nutrition services in the most vulnerable areas. This includes developing healthcare infrastructure in remote areas (Gross et al., 2006) and providing affordable and accessible healthcare services to all segments of society.

Access to quality healthcare is another crucial component in combating stunting. Children who receive regular health check-ups and mothers who receive quality prenatal care have a better chance of growing up healthy and free from malnutrition issues. Improving access to healthcare, particularly in impoverished and rural areas, can result in broader and more equitable impacts of stunting intervention policies across the population.

Through robust monitoring and structured evaluation, we can also ensure that every designed policy is more inclusive. Policies that target not just the general population but also vulnerable groups such as children in conflict zones, families with low education levels, or indigenous communities have a higher chance of success. Inclusivity in policies will ensure that no group is left behind in the government's efforts to reduce stunting.

With all these elements—monitoring, evaluation, data visualization, and a focus on improving food security and healthcare access—stunting intervention policies can become more effective. A data-driven approach allows for more targeted interventions, avoids resource wastage, and ensures that the outcomes align with policy goals. In the long term, policies implemented in this way will not only reduce stunting rates but also create a healthier and more productive generation in the future. Therefore, the sustainability of stunting intervention policies must be a top priority. These policies should continue regardless of changes in leadership or political dynamics, including shifts in political priorities (Taylor et al., 2015). By building policies based on strong data, responsive to field conditions, and inclusive of all societal groups, we can ensure that stunting reduction efforts will continue to have a positive impact in the future.

Overlay Visualization

The overlay visualization shows the shifting focus of research topics related to stunting from 2016 to 2019. Blue represents topics commonly discussed in 2016, while green to yellow indicates more relevant topics in recent years, particularly in 2019. This provides insight into how research in this field has evolved, with a shift from early themes focused on basic nutrition toward more complex issues such as government policy, food security, and social inequality.

One of the main themes emerging in green and yellow is government, food security, and challenge, highlighting the critical role of government in addressing stunting. This theme shows an increasing focus on food security policies, which became more prominent in the literature in 2018 and 2019. It reflects a broader awareness of the need for integrated policy interventions to combat stunting, particularly in ensuring the availability of nutritious food for vulnerable groups.

Keywords such as sanitation, environment, and quality also appear in green-yellow, indicating that sanitation and environmental issues have garnered more attention in recent years. This shift suggests that efforts to address stunting must not only focus on nutrition but also consider environmental factors affecting child health, such as access to clean water and sanitation. The increasing attention underscores the recognition that a healthy environment is crucial for minimizing the risk of stunting, especially in impoverished areas.

Social inequality, represented by the keyword inequality, has become a more prominent topic in 2018-2019, as evidenced by its yellow color. This highlights that more research is linking the prevalence of stunting to inequalities in access to nutrition, education, and healthcare. These inequalities extend beyond economic disparities to include gender, geographic, and social inequities, all of which exacerbate stunting in disadvantaged groups.

The keyword maternal education, also in yellow, indicates that this topic has received increasing attention in the stunting literature. Recent research emphasizes the importance of maternal education as a key factor in preventing stunting. Educated mothers tend to be more aware of the importance of nutrition, have better knowledge of child-rearing practices, and are more capable of accessing healthcare services. As such, improving women's education is a vital strategy in significantly reducing stunting rates.

The green-yellow cluster on the right side of the visualization also highlights the importance of nutritional status and household, signifying that family conditions and child nutrition remain central topics in the discussion on stunting. However, attention to this theme has expanded beyond just nutrition to consider how household factors such as socioeconomic status and healthcare access influence a child's nutritional status. Further research in 2018-2019 has clarified the role of households in ensuring that children receive adequate nutrition for optimal growth.

Keywords like prevalence rate and national family health survey (NFHS), appearing in green and yellow, indicate increased efforts to more accurately measure stunting prevalence through national surveys and broader data collection. This is important because accurate data on stunting prevalence forms the basis for governments and policymakers to design targeted and effective interventions. Better data collection helps understand stunting patterns across different social and geographical groups.

In the blue-green cluster, keywords such as age, risk, and association stand out. This indicates that the focus on age and demographic risk factors in stunting has existed since 2016 and remains a crucial topic through 2019. Age is a critical aspect of stunting prevention, as the first two years of a child's life are a "golden period" that determines their future growth. Interventions during this stage have a significant impact on a child's development, and research on age and demographic risk factors remains a major area of focus.

Keywords like boy and girl, appearing in green to yellow, suggest that attention to gender differences in stunting prevalence (Mukhopadhyay, 2016) has become increasingly important in recent research. Some studies have shown that girls may be more vulnerable to stunting in certain cultures, while in others, boys are more at risk. The sociocultural factors that influence the distribution of nutrition and healthcare between boys and girls have become a topic of growing interest among researchers

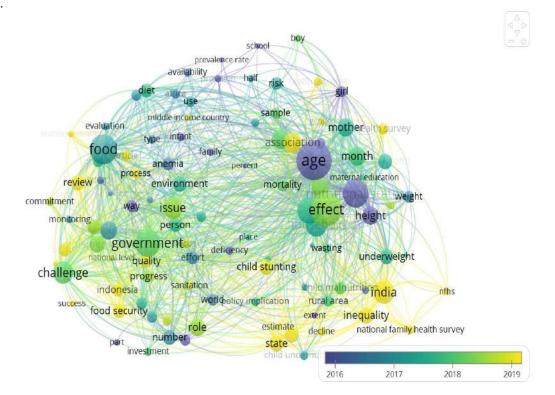


Figure 2: Overlay Visualization of Co-occurrence

Overall, this overlay visualization highlights a significant shift in research focus on stunting over the years. While nutrition and health factors remain central topics, increasing attention is being given to socioeconomic, environmental, and government policy factors. A broader and more multidimensional approach to stunting is reflected in the latest literature, emphasizing the need for cross-sector interventions that encompass food security, education, sanitation, and social inequality. Through this evolving research, policymakers can design more comprehensive solutions to effectively reduce stunting in the future.

Density Visualization

In this visualization, yellow represents the most frequently appearing keywords and is considered central themes, while green to blue indicates less frequently discussed yet still relevant topics. The density map visualization, based on a Scopus dataset covering various health, nutrition, and policy-related topics, highlights several key issues. One prominent topic is the role of government in alleviating malnutrition, with "government" standing out as a dominant keyword. This indicates that government policies play a significant role in addressing nutrition-related issues such as malnutrition, stunting, and unequal access to food. Policies that implement nutrition intervention programs are crucial for addressing these widespread issues, particularly in developing countries.

A focus on maternal and child nutrition is also evident from keywords like "mother," "child stunting," and "maternal education." These terms suggest that maternal nutrition during pregnancy and maternal education significantly affect a child's nutritional status. Studies reviewed in Scopus emphasize the importance of maternal health during pregnancy in preventing stunting and malnutrition in children. The importance of age in nutritional status is indicated by the prominence of the keyword "age" in the visualization. For example, early childhood is a critical period during which malnutrition can have significant effects on both physical and cognitive development.

Food availability and food security are highlighted by keywords like "food" and "food security," which indicate that access to safe and affordable food is a critical issue in nutrition discussions. Many articles in the Scopus dataset discuss food security challenges across various regions, including Sub-Saharan Africa and South Asia.Stunting remains a global issue, as indicated by the frequent appearance of the keyword "child stunting." Stunting is one of the long-term consequences of chronic malnutrition, and various Scopus articles discuss interventions by governments and international organizations to address this problem.

The issue of inequality in nutrition access is reflected in the keyword "inequality," showing that access to adequate nutrition remains unequal, particularly between different socioeconomic groups. This inequality is often linked to poverty, education, and geographic location. Articles in the dataset frequently highlight how these disparities affect child development and maternal health.Environmental impacts on nutrition are represented by the keyword "environment," emphasizing how factors like sanitation, access to clean water, and climate change affect nutritional status. Scopus articles often discuss environmental interventions to improve sanitation as a crucial step toward improving nutrition.

Developing countries, such as "India" and "Indonesia," emerge as examples where nutritional issues remain a major concern. Many studies in Scopus focus on malnutrition in low- and middle-income countries, where large-scale government interventions are essential to improve the situation.Infant and child health is another key area, with "infant" and "young child" appearing in the visualization. These keywords underscore the importance of early life stages in determining nutritional status. Scopus articles emphasize the importance of exclusive breastfeeding and nutritional interventions during early childhood to prevent stunting and malnutrition.

Nutritional changes due to the pandemic, while not explicitly shown in the visualization, are highlighted in some Scopus articles that discuss how the COVID-19 pandemic has affected global nutrition patterns. The pandemic has exacerbated inequalities in access to food and healthcare, making nutrition interventions more critical to prevent long-term effects on vulnerable populations.By combining visualization data and literature from Scopus, it becomes clear that nutritional challenges are highly complex and involve multiple aspects, ranging from government policies and community-based interventions to environmental and socioeconomic impacts

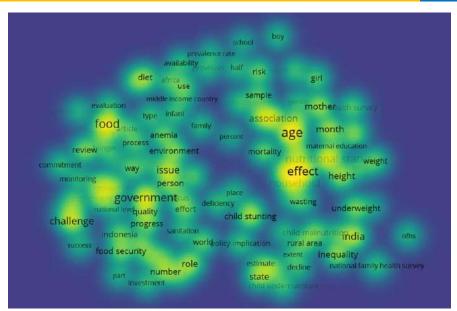


Figure 3. Density visualization of co-occurrence

III. CONCLUSION

Based on the visualization generated by VOSviewer, several key conclusions can be drawn regarding stunting policies and research. First, the visualization highlights various central themes closely related to stunting, such as food security, government, nutritional status, and inequality. This confirms that stunting is deeply intertwined with factors such as social inequality, access to food, and the role of the government in monitoring and implementing relevant policies. This reliance on multiple factors underscores the importance of a multidimensional approach to effectively addressing stunting. Second, the visualization shows a strong interaction between age, effect, and the nutritional status of children and mothers, indicating that age and health status are critical determinants of stunting risk. Issues such as poor nutrition, limited access to healthcare, and an unsupportive socioeconomic environment all contribute to this problem. Therefore, policies that focus on improving access to nutritious food and maternal-child healthcare are vital in breaking the stunting cycle.Lastly, the visualization indicates that comprehensive efforts, evaluation, and a strong government commitment are necessary to address the issue of stunting thoroughly. There needs to be an increased role from various sectors—governments, communities, and international organizations—to tackle challenges such as food insecurity, inequality, and healthcare access. With well-targeted strategies and measurable interventions, stunting policies can be more effective and sustainable.

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