

Addressing Stunting Through Local Strategies: A Study of Social Phenomena in Various Regions of Indonesia

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Abstract

Purpose - This study examines local strategies for stunting prevention across various Indonesian regions, emphasizing the role of social phenomena in shaping these efforts. **Design/methodology/approach** - Thematic analysis, supported by NVivo software, was used to analyze the data, focusing on the interplay of social, cultural, and economic factors. **Findings** - The study revealed significant regional disparities in stunting rates and the effectiveness of prevention strategies. Community-driven initiatives, such as Gotong Royong, were particularly effective in fostering collective action and improving nutritional practices. Innovative communication strategies leveraging digital platforms significantly enhanced awareness and engagement, especially in urban areas. **Practical implications** – Innovative communication strategies, particularly those leveraging digital platforms, have proven effective in raising awareness and educating communities about stunting prevention. **Originality** – This research uses a comprehensive approach to evaluate local strategies in various socio-economic and cultural contexts, providing valuable insights into the customization of stunting prevention programs in Indonesia.

Keywords: Community-driven initiatives, Indonesia, Local strategies, Socio-economic factors, Stunting prevention.

How to implement a healthy lifestyle is indeed a very important thing to be able to improve the welfare of human life. Life will be very good if humans can stay related to health (Sufa, Christantyawati and Jusnita, 2017). There is a significant problem in Indonesia that is a reflection of long-standing social and health problems. Stunting, which is defined as having an insufficient height for age, is particularly prevalent. The results of recent studies highlight

the multifaceted nature of the causes of stunting, which include deficiencies in nutrition, inadequate knowledge of maternal health, and sanitation practices that are not particularly effective. The researchers (Gustina et al., 2020; Karsa et al., 2021; Suratri et al., 2023) highlight the complex relationship between the dietary intake, maternal education, and environmental factors that contribute to stunting. This multifaceted background lays the groundwork

for the investigation of localised strategies to reduce the prevalence of stunting across Indonesia's diverse socio-economic landscape. There is a significant disparity in the prevalence of stunting across different regions in Indonesia, which suggests that the geographical and socio-economic contexts have a significant influence on the rates of stunting. An intriguing outcome of this case study revealed a correlation between the education level of mothers and the prevalence of stunting in children, highlighting the significant impact of maternal education on child health outcomes (Hadna, Ardiansyah and Habib, 2023). In line with, women's empowerment plays a crucial role in preventing stunting, as women, often the primary caregivers in households, are pivotal in meeting children's nutritional needs, thereby significantly influencing children's health and growth (Margatot & Huriah, 2021). Research carried out by (Hadna, Ardiansyah and Habib, 2023) and (Margatot and Huriah, 2021) shed light on the differences that exist between urban and rural areas, thereby highlighting the importance of targeting interventions that are specific to each region. For the purpose of developing effective strategies for the prevention of stunting rates, this variation highlights how important it is to have a solid understanding of the social phenomena and cultural practices that are prevalent in the communities.

There is a significant disparity in the efficacy of interventions across the numerous regions of Indonesia, despite the fact that the problem of stunting is a pressing public health concern in Indonesia. In order to effectively address the problem of stunting, the research problem focuses on identifying and evaluating local strategies within a variety of cultural and socio-economic contexts. This is essential in order to effectively address the issue. It is necessary to take a multifaceted approach to both prevention and intervention in order to address the challenge of stunting. This is because the factors that influence stunting are complex, and that complexity makes it necessary to take such an

approach. There have been general solutions that have included interventions that are nutrition-specific and nutrition-sensitive, as well as community empowerment and innovative communication strategies. In Indonesia, the campaign against stunting has been comprehensive, involving a blend of interventions that combine nutrition-specific and nutrition-sensitive strategies, showcasing a holistic approach to tackling this critical health issue. The Riskesdas (2013) findings highlight that low parental income and education levels significantly contribute to the incidence of stunting in children under five, underscoring the critical role of socio-economic factors in child health outcomes (Karsa et al., 2021). However, the geographical landscape significantly contributes to the disparities in stunting rates across Indonesia, underscoring the importance of addressing location-specific challenges in stunting prevention efforts (Siswati et al., 2022). Together, these solutions have been put into action in order to achieve the desired results. However, the effectiveness of these approaches varies greatly across the diverse regions of Indonesia, which suggests that there is a need for individualised strategies that take into consideration the distinct cultural and socio-economic contexts of each region.

Community-driven initiatives and culturally sensitive interventions emerge as critical strategies in combating stunting in Indonesia. Research by (Rizal and van Doorslaer, 2019; Akbar, Mahardhika and Sihalo, 2021) highlights the role of community empowerment and religious involvement in enhancing stunting prevention efforts. These studies advocate for the integration of local knowledge and traditional practices, such as Gotong Royong, into stunting prevention programs, underscoring the value of leveraging social cohesion for public health initiatives. As (Siswati et al., 2022) have demonstrated, the utilisation of digital platforms for the purpose of health communication is a novel approach that contributes to the dissemination of nutritional and health education

messages to a more extensive audience. In order to address the complex nature of stunting, this digital strategy, when combined with more conventional methods of community engagement, provides a comprehensive approach. A number of studies conducted by (Khatimah and Laksmi, 2019) have provided evidence that demonstrates the significance of economic and infrastructure interventions. These interventions include conditional cash transfers and programmes that empower women. These interventions not only address immediate nutritional needs, but they also tackle the underlying socio-economic determinants of stunting, which exemplifies the significance of taking a holistic approach to the prevention of stunting. Meanwhile numerous studies have explored the determinants of stunting and the effectiveness of interventions in Indonesia, there remains an evident gap in understanding how these strategies can be synergized and customized for the unique conditions prevalent across the country's diverse regions. The absence of an in-depth comparative analysis of these approaches within Indonesia's varied socio-economic and cultural contexts is notable, even though existing literature acknowledges the successful deployment of localized strategies. This gap underscores the necessity for a comparative investigation that assesses the impact of integrated interventions designed specifically for the nuanced needs of different communities. Such a study could significantly enrich our comprehension of stunting prevention in Indonesia, offering a more detailed perspective on how to effectively combat this challenge across the nation's multifaceted landscape.

This study aims to address the gap in the literature by conducting a comparative analysis of the effectiveness of various local strategies for stunting prevention across different regions of Indonesia. By examining the interplay of governmental, local, and economic/infrastructural approaches within diverse communities, this research seeks to

identify effective combinations of strategies tailored to meet the unique needs of each region. The novelty of this study lies in its comprehensive approach to evaluating local strategies within a wide range of socio-economic and cultural contexts, offering valuable insights into the customization of stunting prevention programs in Indonesia. The scope encompasses a qualitative analysis of social phenomena influencing stunting prevention efforts, considering geographical, cultural, and methodological perspectives.

Literature Review

Review of Related Theory

Researchers (Gustina et al., 2020; Karsa et al., 2021; Suratri et al., 2023) have revealed how nutritional, educational, and environmental factors collectively shape stunting outcomes in Indonesia. Their studies emphasize the critical role of maternal education, dietary habits, and environmental conditions in fostering child growth and development. This trio of elements captures the socio-economic and cultural frameworks that influence children's health trajectories. Additionally, (Margatot and Huriah, 2021; Hadna, Ardiansyah and Habib, 2023) have enriched this discussion by identifying disparities in stunting rates between urban and rural areas, demonstrating how maternal education plays a pivotal role in shaping these differences. These findings underline the power of informed caregiving in combating stunting. (Rizal and van Doorslaer, 2019; Akbar and Rahman, 2021) further affirm the value of community-centered and culturally attuned interventions. Their research showcases the success of using local community structures and traditional practices in public health initiatives, which highlights the significance of cultural harmony and community solidarity in health strategies. Moreover, (Siswati et al., 2022) introduce an exciting prospect of merging digital platforms with traditional communication

methods to bolster the outreach and effectiveness of health education aimed at preventing stunting.

However, these studies collectively point to a critical gap in the comparative analysis of intervention strategies across various socio-economic and cultural settings within Indonesia. This absence indicates a need for deeper insights into how localized strategies can be effectively integrated and customized to meet the diverse needs of the Indonesian populace. The literature advocates for a detailed exploration of how different strategy combinations can be fine-tuned for optimal impact on stunting rates nationwide.

The Social Ecological Model

The Social Ecological Model (SEM), foundational to this study, explores public health challenges through multiple layers of influence from individual behaviors and relationships to broader community and societal factors. This model is crucial in dissecting the complex nature of stunting, linking individual dietary and caregiving behaviors with maternal education, community engagement, and societal conditions like economic policies and infrastructure. By employing SEM, this research aims to navigate the nuanced interactions among these layers to offer a detailed evaluation of effective stunting prevention strategies.

The Social Ecological Model (SEM) is a comprehensive framework that emphasizes the interconnectedness between social and ecological systems, highlighting the artificiality of the boundaries traditionally drawn between them (Lamborn and Smith, 2023). This model goes beyond mere delineation and involves defining the structure and function of the system, thereby developing a holistic understanding of the interactions within social-ecological systems (Khalid, Ashraf and Aleem, 2022). The SEM comprises five major components: individual, interpersonal, organizational, community, and socio-political, which collectively influence behaviors and outcomes within the system (Shoemaker, 2012).

Researchers often utilize the SEM as an overarching framework to comprehend the

complex interplay between personal and environmental factors in human health and illness (Van Kasteren, Lewis and Maeder, 2020). By incorporating diverse factors at multiple levels, the SEM aids in designing, implementing, and evaluating health promotion programs (Van Kasteren, Lewis and Maeder, 2020). One of the key strengths of the SEM is its holistic approach, which recognizes the agency of social, cultural, and environmental factors in shaping health behaviors and outcomes (Lade et al., 2015).

Moreover, the SEM has been instrumental in developing models that integrate rich social and ecological data to investigate phenomena such as ecological regime shifts and the dynamics of social-ecological systems (Ziegler, Jones and Solomon, 2019). By formalizing findings into frameworks like the Social Ecological Systems Framework (SESF), researchers can better understand and manage local social-ecological systems for sustainable resource management.

Therefore, the SEM serves as a valuable tool for researchers and practitioners seeking to analyze and address complex issues that involve the intricate relationships between social and ecological components. Its adaptability and integrative nature make it a versatile framework for studying diverse phenomena and guiding interventions aimed at promoting sustainability, resilience, and well-being within social-ecological systems.

The Social Ecological Model: Understanding and addressing stunting

The Social Ecological Model (SEM) provides a comprehensive framework for understanding and addressing stunting in children through local strategies in various regions of Indonesia. Stunting, a form of growth disorder, is influenced by a multitude of factors at different levels, including individual, interpersonal, organizational, community, and socio-political factors (Titaley et al., 2013). Research on determinants of stunting in Indonesia has highlighted the role of social determinants such as maternal education, parental occupation and income, environment,

social and family support, and health service factors (Titaley et al., 2013; Rachmi et al., 2016; Nugroho et al., 2023).

In Indonesia, addressing stunting requires a multi-level approach that considers household and housing characteristics, maternal and paternal characteristics, antenatal care services, and child characteristics (Titaley et al., 2013). Strategies to combat stunting should focus on improving socio-economic levels, fulfilling food intake, and sanitation conditions (Permatasari et al., 2023). Additionally, interventions should include intensive socialization about improving nutritional status during pregnancy and promoting appropriate feeding practices for children up to 24 months old (Permatasari et al., 2023).

The SEM emphasizes the interconnectedness of individual, social, cultural, physical, and environmental factors in influencing health behaviors, making it a valuable framework for developing strategies to reduce stunting in children (Davis, 2023). By considering the complex relationships among people, their environment, and social context, the SEM can guide the design and implementation of effective interventions to address stunting in Indonesia (Killian et al., 2020).

In conclusion, the SEM offers a holistic approach to understanding the social phenomena contributing to stunting in Indonesia. By integrating insights from studies on determinants of stunting and leveraging the SEM framework, policymakers and practitioners can develop targeted and comprehensive strategies to combat stunting and improve the health outcomes of children in Indonesia.

Positioned within this theoretical and empirical landscape, this study seeks to bridge existing gaps by analyzing local prevention strategies for stunting. This exploration aims to uncover which combinations of governmental, community, and socio-economic interventions can most effectively tailor public health approaches to fit Indonesia's varied regional contexts. This strategy promises not only to

enhance the effectiveness of stunting prevention efforts but also to guide more customized health policies across Indonesia's diverse settings.

Method

The research adopts a qualitative design to explore the multifaceted nature of stunting in various regions of Indonesia. This approach will facilitate a deeper understanding of local strategies, cultural practices, and community dynamics influencing stunting prevention efforts. The study will employ a comparative case study methodology, examining different regions to capture diverse socio-economic contexts and their unique responses to stunting. This method will allow for an in-depth exploration of how governmental, local, and infrastructural approaches are integrated and adapted across varied cultural settings (Lewis, 2015; Tarnoki and Puentes, 2019; Urcia, 2021).

Participants will be selected from multiple regions in Indonesia, encompassing both urban and rural areas to reflect the geographical and socio-economic diversity. The study will target a range of stakeholders involved in stunting prevention, including healthcare providers, community leaders, parents of young children, local government officials, and representatives from non-governmental organizations. Purposive sampling will be used to ensure that the participants have direct experience or knowledge about stunting prevention strategies, facilitating rich and informed perspectives.

Data will be primarily collected through semi-structured interviews to deeply explore the perspectives of various stakeholders on stunting prevention strategies across different regions of Indonesia. Semi-structured interviews are selected for their flexibility, allowing a thorough investigation of respondents' experiences and insights while maintaining a consistent framework for comparison. These interviews aim to gather rich, detailed information about the effectiveness of stunting prevention strategies, the role of community practices, and the impact

of socio-economic factors. The interview guide will feature open-ended questions designed to elicit participants' personal experiences and views, capturing the complexity and specificity of local contexts. Key thematic areas include the effectiveness of current strategies, the influence of community practices such as Gotong Royong, and the impact of socio-economic determinants like maternal education, household income, and access to healthcare.

Participants will be selected using purposive sampling to ensure they have direct experience with stunting prevention strategies, encompassing a diverse range of stakeholders including healthcare providers, community leaders, parents and caregivers, and local government officials. Interviews will be conducted in comfortable and convenient settings for participants, audio-recorded with consent to ensure accuracy, and may be conducted in local languages to facilitate full expression. Each interview will last between 45 minutes to an hour, allowing in-depth exploration of the questions. Researchers will also take detailed notes to capture non-verbal cues and immediate reflections, including observations about participants' demeanor and environmental context, to enrich the data analysis.

This section utilizes semi-structured interviews to gain in-depth insights into the effectiveness of stunting prevention strategies across different regions of Indonesia. By focusing on the diverse experiences and perspectives of stakeholders, including healthcare providers, community leaders, parents, and local officials, the study aims to capture the complexity of stunting prevention efforts within various socio-economic and cultural contexts. The flexibility of semi-structured interviews allows for a thorough exploration of key themes such as the role of community practices, the influence of socio-economic factors, and the effectiveness of current strategies (Urcia, 2021). Conducted in comfortable settings and potentially in local

languages, these interviews ensure that participants can express their views fully and openly. Detailed note-taking will complement audio recordings to enrich the analysis with non-verbal cues and contextual observations. This approach promises to provide comprehensive, nuanced insights that can inform more effective, culturally sensitive stunting prevention strategies tailored to the unique needs of different communities in Indonesia.

Data analysis will follow a thematic approach, involving the systematic coding and categorization of data to identify emerging patterns and themes. NVivo software will be used to assist in the organization and analysis of qualitative data. Thematic analysis will involve several stages, including familiarization with the data, generating initial codes, searching for themes, reviewing themes, and defining and naming themes. The analysis will focus on understanding the complex interplay of social, cultural, and economic factors influencing stunting prevention efforts in different regions of Indonesia. The findings will be contextualized within the broader literature on stunting and public health interventions (Braun and Clarke, 2006).

This qualitative research methodology is designed to comprehensively address the complex issue of stunting through a lens that respects and integrates local socio-cultural dynamics. By focusing on qualitative insights from a diverse range of stakeholders, the study aims to contribute valuable data on effective strategies for stunting prevention that are culturally appropriate and socio-economically tailored for various Indonesian communities.

Results

Regional Disparities and Local Strategies in Stunting Prevention

The analysis of qualitative data from various regions of Indonesia reveals significant regional disparities in stunting rates and the effectiveness of local strategies. In rural areas, particularly in

eastern Indonesia, stunting rates remain high despite the implementation of national nutrition programs. Participants highlighted the lack of access to healthcare services and poor

infrastructure as major obstacles. In contrast, urban areas showed slightly improved outcomes, attributed to better access to healthcare and higher maternal education levels.

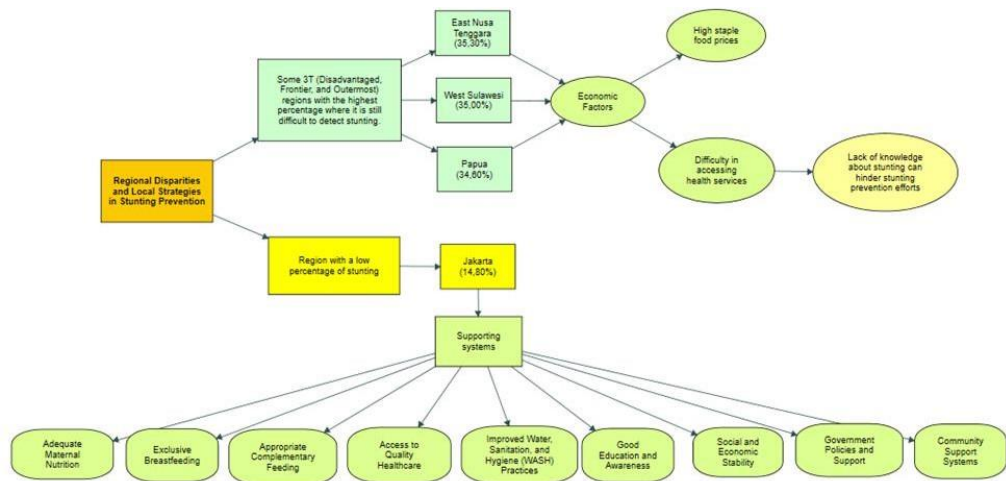


Figure 1. Regional Disparities and Local Strategies in Stunting Prevention

Upon analysing qualitative data from different regions of Indonesia, it becomes evident that there are notable regional differences in stunting rates and the efficacy of local solutions. Stunting rates in rural regions, especially in eastern Indonesia, continue to be elevated despite the adoption of government nutrition programmes. Participants identified the absence of healthcare services and inadequate infrastructure as significant barriers. On the other hand, metropolitan areas exhibited somewhat enhanced results, which can be linked to greater healthcare accessibility and higher levels of maternal education.

The diagram illustrates the different factors that contribute to regional differences in stunting prevention in Indonesia, with a specific focus on the 3T (Disadvantaged, Frontier, and Outermost) areas. These locations experience the largest proportion of stunting as a result of various interrelated variables, predominantly economic

but also encompassing accessibility and

knowledge-related challenges. Below is a comprehensive overview and analysis:

Overview of the Phenomenon

The diagram indicates that the 3T regions, such as East Nusa Tenggara (35.30%), West Sulawesi (35.00%), and Papua (34.60%), have notably high rates of stunting. These regions are usually isolated, underdeveloped, and have restricted access to resources, which greatly contributes to the high occurrence of stunting. On the other hand, Jakarta exhibits a relatively low stunting incidence of 14.80% due to its access to sufficient healthcare facilities and high-quality education for its population (CNBC Indonesia, 2024).

Economic Factors

1. High Staple Food Prices

In regions such as East Nusa Tenggara (35.30%), West Sulawesi (35.00%), and Papua (34.60%), the exorbitant costs of essential food items pose a major obstacle. This poses a challenge for families to afford a nourishing diet,

which is crucial for mitigating the occurrence of stunting. Socioeconomic constraints might hinder families' ability to get a wide range of nutritious foods, resulting in child malnutrition.

2. Difficulty in Accessing Health Services

These regions frequently suffer from inadequate healthcare infrastructure, which is essential for delivering prenatal and postnatal care, routine child health examinations, and nutritional guidance all of which are critical for preventing stunting.

Knowledge-Related Issues

• Lack of Knowledge About Stunting

There is a significant lack of comprehension on the definition of stunting, its repercussions, and strategies for prevention. The absence of knowledge impedes the ability of both communities and individuals to take effective measures to address stunting.

Contributing factors to the low prevalence of stunting in urban regions such as Jakarta

1. Adequate Maternal Nutrition

• Pre-Pregnancy and Pregnancy Nutrition

Optimal nutrition prior to and throughout pregnancy is crucial for promoting optimal foetal growth and reducing the likelihood of low birth weight, which is a contributing factor to stunted growth. Providing pregnant women with adequate access to nutrient-dense foods and prenatal supplements can have a substantial impact on the health of the newborn (Michigan, 2021).

2. Exclusive Breastfeeding

• First 6 Months

Infants who are exclusively breastfed during the first six months of their lives receive vital nutrients, antibodies, and hormones that support healthy development and guard against illnesses that can lead to stunted growth (Gilley and Krebs, 2020).

3. Appropriate Complementary Feeding

• Introduction of Solid Foods

Commencing at approximately six months of age, it is of utmost importance to provide complementary feeding that is timely, sufficient,

secure, and suitable. This entails offering nourishing foods in addition to continuing breastfeeding to ensure that youngsters obtain a wide range of essential nutrients necessary for optimal growth (Chane et al., 2017).

4. Access to Quality Healthcare

• Regular Check-Ups and Immunizations

Consistent paediatric care, which includes vaccinations and monitoring of growth, aids in the prevention and control of infections that can lead to undernutrition. Timely intervention in instances of growth faltering can avert the occurrence of stunting (Sithamparapillai, Samaranayake and Wickramasinghe, 2022).

5. Improved Water, Sanitation, and Hygiene (WASH) Practices

• Safe Drinking Water and Sanitation

Access to uncontaminated water and enhanced sanitation facilities decreases the occurrence of waterborne illnesses, which are strongly associated with malnutrition and stunted growth. Effective hygiene measures, such as thorough handwashing, are essential for reducing the spread of illnesses (Sifullah et al., 2024).

6. Education and Awareness

• Nutritional Education

Providing parents and carers with information on the significance of nutrition, breastfeeding, and infant care practices can greatly decrease the chances of stunting. Acquiring knowledge regarding the process of preparing nourishing meals and being able to identify the indicators of malnutrition are crucial (Gilley and Krebs, 2020).

7. Social and Economic Stability

• Household Income and Food Security

Increased household income and food security enable households to purchase a wide range of nutritious foods essential for promoting healthy development. Furthermore, economic stability facilitates the sustained availability of healthcare and education (Eicher-Miller et al., 2023).

8. Government Policies and Support

• Nutritional Programs and Policies

Government policies that are successful in promoting maternal and child nutrition, such as providing financial assistance for food, health insurance coverage, and specialised nutritional programmes for the most at-risk individuals, are essential in reducing stunting (Acosta and Fanzo, 2012).

9. Community Support Systems

• Local Health Services and Education

Community support networks, such as local health professionals and community-led nutritional programmes, play a crucial role in disseminating information and ensuring easy access to essential resources (Candice, 2021).

These findings are consistent with the research conducted by Angel (Angel, 2024), which highlighted the significance of socioeconomic factors in the prevalence of

stunting. The efficacy of local solutions is undeniably dependent on the incorporation of services that tackle these wider socioeconomic determinants of health, such as education, sanitation, and healthcare availability.

Effectiveness of Community-Driven Initiatives

Community-driven initiatives, such as those incorporating the Gotong Royong tradition, were found to be particularly effective in fostering community participation and improving nutritional practices. In areas where these initiatives were strongly implemented, communities reported a more coherent understanding of nutritional needs and a collaborative approach to child care and feeding practices.

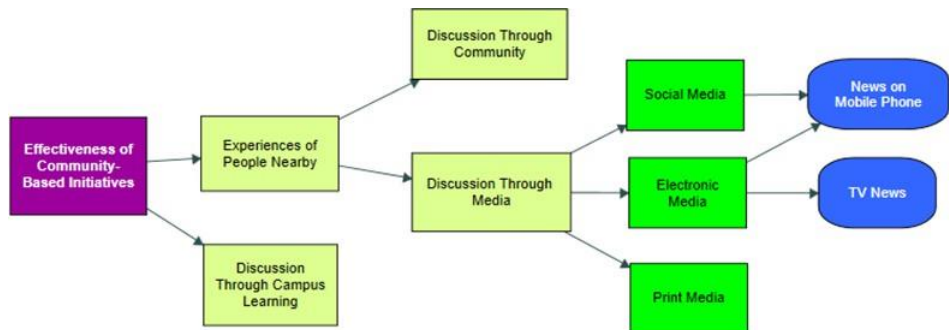


Figure 2. Effectiveness of Community-Driven Initiatives

Initiatives supported by the community, such as those that involve the Gotong Royong tradition, have been proven to be highly beneficial in promoting community involvement and enhancing dietary practices. Communities in regions where these efforts were effectively implemented observed a greater comprehension of dietary requirements and a cooperative approach towards infant care and feeding practices.

The primary component of the flowchart (Figure

1) is the "Effectiveness of Community-Based

assessment of the effectiveness of community-based initiatives in attaining their objectives, such as enhancing local health, education, and social cohesion.

Transmission Paths: Experiences of People Nearby and Campus Learning

The flowchart indicates that the efficacy of these activities is predominantly addressed and conveyed through two primary channels:

1. Experiences of People Nearby

This suggests that firsthand experiences, potentially disseminated through

oral communication or local assemblies, have a substantial impact on moulding opinions of the efficacy of the activities. Individuals' own contacts and observations can contribute to a bottom-up assessment of these activities. Knowledge acquired from intimate acquaintances can be categorised into two types of discussion, discussion within the community and discussion through the media.

a) Discussion within the community typically entails the utilisation of direct and interpersonal communication channels within a community, such as community meetings, local group discussions, and potentially casual gatherings where individuals exchange their perspectives and experiences.

b) Discussion through the media, this approach emphasises the influence of different media formats on the public's comprehension and opinions regarding the effectiveness of the efforts. The following items are included:

c) Social media platforms such as Facebook, Twitter, and Instagram have the ability to enhance personal narratives and viewpoints, allowing them to reach a wide range of people and engage with a diversified audience.

d) Electronic media encompasses television and radio, platforms that are capable of transmitting news pieces, documentaries, and interviews regarding various activities. The following items are included Mobile phone news encompasses several forms of information dissemination, such as alerts, app notifications, and articles accessed through smartphones. These news sources are characterised by their high level of personalisation and immediacy. Television news continues to be a substantial and frequently regarded as a more formal and authoritative means of obtaining information for many people.

e) Print media, such as newspapers and magazines, have the ability to publish stories, editorials, and community reactions that evaluate

or provide detailed information about various activities.

2. Campus Learning

This approach acknowledges the importance of educational institutions, such as schools and universities, in actively engaging in discussions and sharing information about these projects. This may entail acquiring formal education through structured curriculum, seminars, or student projects that focus on analysing local community-based programmes. The diagram highlights the various methods in which the effectiveness of community-based programmes is communicated and evaluated. This emphasises the significance of engaging in both individual and media-driven conversations in influencing public opinions and the overall assessment of these endeavours. The combination of personal and media communication pathways ensures that a wide range of individuals can access diverse viewpoints, potentially resulting in a more thorough comprehension and endorsement of community initiatives.

The efficacy of these community-led efforts corroborates the findings of (Akbar et al., 2022), indicating that empowering and involving communities can greatly augment the efficacy of health interventions. These initiatives utilise local knowledge and cultural practices, which are essential for guaranteeing the long-term viability and greater adoption of health-promoting behaviours.

Impact of Innovative Communication Strategies
The use of digital platforms for health communication, especially in younger, more tech-savvy populations, has led to increased awareness and knowledge about stunting prevention. Regions that implemented these strategies reported better engagement, particularly in urban settings where access to digital technology is more prevalent.

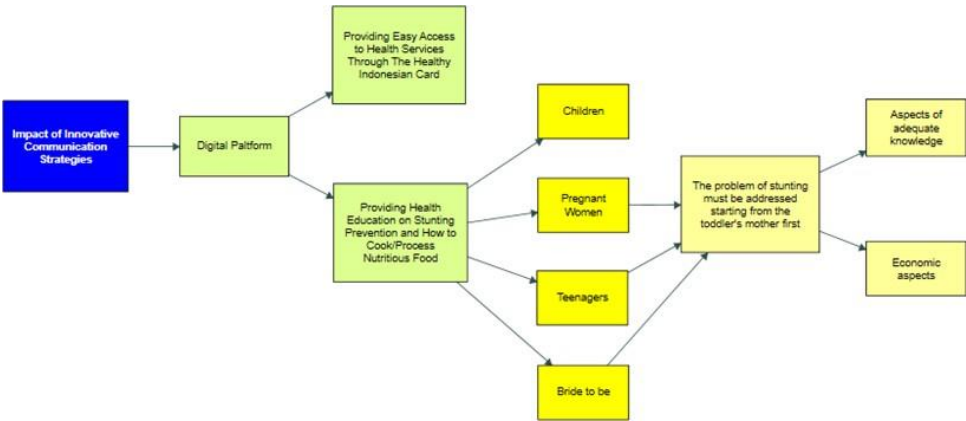


Figure 3. Impact of Innovative Communication Strategies

The utilisation of digital channels for health communication, particularly among younger, technologically proficient populations, has resulted in heightened awareness and understanding about the prevention of stunting. Regions that adopted these tactics observed improved participation, especially in metropolitan areas where the availability of digital technology is more widespread.

This diagram (Figure 2) indicates the utilisation of innovative and efficient communication techniques to disseminate health-related information and services, including through digital platforms, focused outreach efforts, and customised educational programmes that cater to the specific requirements of different demographic segments.

Transmission Paths: Providing Easy Access to Health Services Through the Healthy Indonesian Card and Providing Health Education on Stunting Prevention and How to Cook/Process Nutritious Food

1. Providing Easy Access to Health Services Through the Healthy Indonesian Card

This section of the flowchart signifies that one of the inventive tactics entails facilitating convenient availability of healthcare

services by means of the Healthy Indonesian Card. This is an illustration of how technology or system reforms can be used to simplify healthcare access, making it easier for individuals to receive necessary care. This is particularly important for implementing preventive health measures.

2. Providing Health Education on Stunting Prevention and How to Cook/Process Nutritious Food

Another crucial technique indicated is implementing health education programmes that specifically target the prevention of stunting and provide instruction on the preparation of nutritious food. The purpose of this initiative is to tackle hunger and encourage healthier eating habits, as these are crucial in preventing the growth impairment known as stunting in children.

Target Demographics

The flowchart delineates the precise demographic categories that various tactics are aiming to reach:

- a) Children: Directly targeting children or their guardians to provide education on nutrition and health services may aid in the early prevention of diseases and developmental problems such as stunting.

b) **Pregnant Women:** Informing expectant mothers about diet and health can significantly influence the well-being of both the mother and the child, decreasing the likelihood of birth problems and enhancing health outcomes for both individuals.

c) **Teenagers:** Concentrating on adolescents may entail providing instruction on overall well-being, nourishment, and maybe sexual and reproductive health, which are vital during their journey into adulthood.

d) **Bride to be:** The focus on this distinct population implies a proactive strategy to promote health literacy and well-being prior to starting a family, which can have an effect on future generations.

Specific Issues: Stunting

The flowchart notably highlights stunting as a priority, emphasising the necessity of addressing this issue by prioritising the toddler's mother as the beginning point. This statement suggests that recognising the importance of maternal health and knowledge is crucial in addressing stunting, a condition that hinders the growth and development of children.

Adequate knowledge entails ensuring that the intended demographic is thoroughly educated about health practices and the services that are accessible to them. Additionally, there is the economic dimension that seeks to overcome economic obstacles that hinder individuals from properly receiving or utilising healthcare services.

The diagram illustrates a strategy methodology for healthcare communication, emphasising accessibility and education to enhance health outcomes among various demographic groups. These programmes attempt to eliminate health inequities and promote population health in Indonesia by implementing creative communication tactics to overcome barriers to health education and service utilisation. This strategy prioritises a proactive and preventative approach in healthcare, focusing on both immediate and long-term enhancements in health. This is consistent with

the findings of (Siswati, 2022), which emphasise the capacity of digital health methods to expand the scope and effectiveness of health education.

Socioeconomic Influences on Stunting Interventions

The data illustrate that interventions like conditional cash transfers and women's empowerment programs have had varying levels of success across different socioeconomic groups. Higher income regions displayed better outcomes due to greater resource availability, whereas low-income regions struggled despite similar intervention efforts.

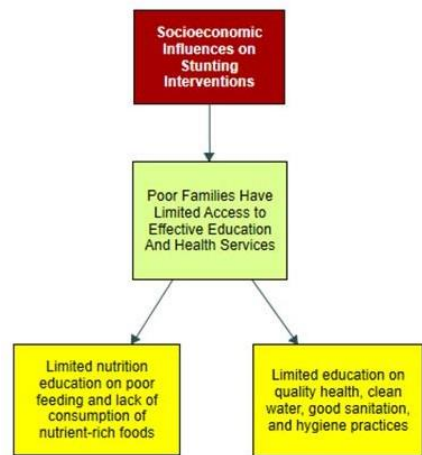


Figure 4. Socioeconomic Influences on Stunting Interventions

The findings demonstrate that interventions such as conditional cash transfers and women's empowerment programmes have achieved differing degrees of success among diverse socioeconomic categories. Regions with more wealth exhibited superior outcomes as a result of having more abundant resources, while regions with lower income faced difficulties despite similar efforts to intervene.

The diagram illustrates the impact of socioeconomic factors on stunting interventions, with a specific focus on the challenges

experienced by impoverished families in accessing quality education and healthcare services. Based on the structure and content of the flowchart, the following analysis is provided:

Socioeconomic Influences on Stunting Interventions

The diagram's uppermost box denotes that socioeconomic considerations have a substantial influence on programmes aimed at reducing stunting. This highlights the idea that the success of efforts to decrease child stunting is greatly impacted by the economic and social conditions in which a kid resides. The socioeconomic position of individuals can impact their capacity to acquire resources, the quality of food they have access to, the availability of healthcare, and the possibilities for education. These factors are crucial in preventing and controlling stunting.

Core Issues: Poor Families Have Limited Access to Effective Education and Health Services

The central point serves as a nexus in the flowchart, demonstrating that poverty is a crucial obstacle that hinders the efficacy of stunting therapies. Economically disadvantaged households may have limited availability to:

1. Education: Constraints on educational possibilities can impede awareness and comprehension of nutritional requirements and health habits.

2. Health Services: Health service is crucial for preventing diseases and disorders such as stunting, may be limited due to economic constraints.

Specific Challenges Highlighted

The flowchart bifurcates into two branches that delineate the precise obstacles encountered by impoverished families:

a) Limited Nutrition Education on Poor Feeding and Lack of Consumption of Nutrient-Rich Foods

This difficulty highlights a deficiency in awareness or a lack of ability to comprehend the significance of nutrient-dense foods in the growth and development of children. Impoverished households may not only have

insufficient means to purchase an adequate amount of food, but also lack the awareness regarding which food varieties are most advantageous for physical growth and cognitive development.

b) Limited Education on Quality Health, Clean Water, Good Sanitation, and Hygiene Practices

This section of the flowchart pertains to the more extensive concerns related to environmental and health education. Inadequate sanitation and absence of potable water are major factors that greatly contribute to health issues, which in turn can result in stunted growth. Furthermore, in the absence of adequate knowledge regarding sanitary habits, families face an increased susceptibility to infections that can worsen nutritional deficits and impede the growth of children.

Solutions to Address These Challenges

1) Improving Access to Health Services

- Implement mobile healthcare initiatives in underprivileged regions to deliver routine medical examinations, immunisations, and maternal healthcare services (Jimenez, 2019).

- Allocate additional resources to healthcare in order to ensure that economically disadvantaged households can obtain essential medical treatments without experiencing financial burden (Jimenez, 2019).

2) Promoting Hygiene and Sanitation Education

- Initiate campaigns that prioritise the significance of maintaining clean water, ensuring good sanitation, and promoting hygiene behaviours. These campaigns can utilise local media and community workshops to effectively target a wide-ranging audience (Geneva, 2022).

- Allocate resources towards the development of infrastructure to enhance the availability of uncontaminated water and sanitation amenities, with a specific focus on rural or marginalised regions (Geneva, 2022).

3) Economic Empowerment Initiatives

- Provide monetary incentives to encourage families to participate in educational programmes focused on diet and hygiene, as well as to ensure they regularly get health check-ups (Gross and Bettencourt, 2019).

- Promote and facilitate local food production by providing subsidies or grants, thereby mitigating the expenses associated with nutritious food (Gross and Bettencourt, 2019).

4) Regular Monitoring and Evaluation

- Establish mechanisms to periodically monitor the health and nutritional well-being of children in disadvantaged communities. This data can assist in improving interventions and ensuring that they are efficiently targeting the underlying factors contributing to stunting (Mason et al., 2006).

The flowchart clearly demonstrates how socioeconomic status influences the impact of stunting interventions by restricting the availability of essential educational and health resources. It underscores the necessity for interventions to be comprehensive, encompassing not only the provision of food or healthcare but also the enhancement of education regarding nutrition, health, and hygiene.

It is important to customise these interventions in order to address the particular socioeconomic obstacles that impoverished families encounter, guaranteeing that they possess the requisite information and resources to avoid stunting. To achieve optimal results, this approach necessitates the collaborative involvement of health, education, and infrastructure sectors.

To address stunting, it is necessary to address the fundamental socioeconomic problems that restrict access to sufficient nutrition, healthcare, and education. To significantly reduce the prevalence of stunting, it is possible to achieve this by introducing focused education programmes, enhancing healthcare accessibility, advocating for improved sanitation practices, and providing economic stability to impoverished families. The results align with the study conducted by (Khatimah and Laksmi,

2019), which suggests that maintaining economic stability is crucial for the effectiveness of stunting prevention programmes. To effectively tackle the underlying problems of food security and healthcare access, economic interventions should be customised to cater to the specific requirements of lower-income groups.

Conclusion

The findings from this study underscore the multifaceted nature of stunting in Indonesia and highlight the importance of localized strategies tailored to the unique socio-economic and cultural contexts of various regions. Through semi-structured interviews with healthcare providers, community leaders, parents, and local government officials, the research has provided in-depth insights into the effectiveness of current stunting prevention strategies. The study revealed significant regional disparities in stunting rates, influenced by factors such as maternal education, household income, and access to healthcare. Community-driven initiatives, such as the traditional practice of Gotong Royong, have shown considerable promise in fostering collective action and enhancing the effectiveness of health interventions. Additionally, innovative communication strategies, particularly those leveraging digital platforms, have proven effective in raising awareness and educating communities about stunting prevention.

Broader Implications

The study's comparative analysis across different regions of Indonesia indicates that a one-size-fits-all approach is insufficient for addressing the complex issue of stunting. Instead, a comprehensive, multi-layered strategy that integrates governmental policies, local community practices, and economic/infrastructural improvements is essential. The success of community-driven initiatives and the significant impact of socio-economic factors highlight the need for interventions that are not only scientifically

sound but also culturally resonant and contextually appropriate. This approach ensures that interventions are sustainable and widely accepted, leading to more effective outcomes in reducing stunting rates.

Contributions to the Field

This research contributes to the field by filling the existing knowledge gap regarding the comparative effectiveness of various stunting prevention strategies across Indonesia's diverse regions. The study emphasizes the critical role of local contexts in shaping health outcomes and provides evidence that supports the integration of community empowerment and innovative communication strategies in public health interventions. The findings suggest that policies and programs should be flexible and adaptable to the specific needs and conditions of different communities to achieve the best results in stunting prevention.

Recommendations for Future Research and Practice

Future research should continue to explore the intersection of socio-economic, cultural, and environmental factors in stunting prevention. Longitudinal studies could provide further

insights into the long-term impacts of various interventions and the sustainability of community-driven approaches. Additionally, there is a need for more research on the effectiveness of digital health communication strategies in reaching underserved and rural populations. For practitioners, the findings suggest the importance of engaging local communities in the design and implementation of health programs, ensuring that interventions are grounded in local knowledge and practices.

In conclusion, addressing stunting in Indonesia requires a nuanced and comprehensive approach that takes into account the complex interplay of social phenomena, cultural practices, and socio-economic disparities. By tailoring strategies to the specific needs of different regions and leveraging the strengths of local communities, significant progress can be made in reducing stunting and improving the health and well-being of children across the country. The insights gained from this study provide a valuable foundation for developing more effective, context-specific interventions that can ultimately lead to better health outcomes for Indonesia's children.

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