



A Systematic Review of Maternal and Child Health Policies in Addressing Stunting: Trends and Challenges

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ABSTRACT

Introduction: Stunting, recognized as a prominent global health issue, particularly in low-income countries, arises from persistent undernutrition and frequent infections, adversely impacting children's physical development, cognitive abilities, and future economic productivity. Notwithstanding the implementation of various maternal and child health strategies designed to mitigate stunting, its incidence remains alarmingly high, exhibiting differential efficacy across diverse contexts due to obstacles in policy execution, accessibility issues, and socio-cultural influences.

Methods: This study utilized a research methodology that included a bibliometric analysis of publications retrieved from the Scopus Database relating to maternal and child health policies in reducing stunting prevalence using the keywords “maternal and child health policies” and “stunting”. The findings were directly related to the research topic, revealing a total of 154 articles published from 2004 to 2023. The criteria set emphasized articles written in English, with the data obtained exported in CSV format. VOS viewer version 1.6.17 was used for bibliometric analysis in this study.

Results: The results showed a significant increase in publications addressing the relationship between health policies and stunting prevalence. Academic discussions on policy and stunting have also increased, especially in the fields of medicine and nursing, which reveal the health impacts on stunted children. Data analysis from various studies emphasized the importance of evidence-based strategies that combine medical interventions with structural, social and economic transformation.

Conclusion: In conclusion, this review emphasizes the importance of collaboration between various sectors, including health, education, and agriculture, in addressing stunting. Policymakers should consider establishing dedicated funding streams through public-private partnerships to ensure the sustainability of stunting prevention programs. Implementing regulatory frameworks that mandate intersectoral collaboration between health, education, and agriculture sectors can enhance policy coherence and resource optimization. Furthermore, adopting performance-based incentives for local health agencies may encourage more effective policy implementation and service delivery.

INTRODUCTION

Stunting, a condition in which children fail to thrive due to chronic malnutrition and recurrent infections, is one of the world's most pressing health problems, especially in developing countries (1). It not only stunts children's physical growth but also affects their cognitive development and future productivity. The impacts are far-reaching, including increased risk of morbidity and mortality, reduced learning capacity, and lower economic potential later in life(2). According to global data, the prevalence of stunting remains high despite the implementation of various health interventions, particularly in countries with high poverty rates and limited access to health services(3). At the national level, many countries have adopted maternal and child health policies aimed at reducing stunting, but their effectiveness is still debatable and requires further evaluation(4).

Research by Malta DC (5) The “Bolsa Família” program in Brazil, a conditional cash transfer (CCT) initiative, has been instrumental in improving maternal and child health outcomes, including reducing stunting. Research has shown that the program significantly reduces child stunting by increasing access to health services, improving nutrition, and ensuring prenatal care. Research by Huicho, L., Segura, in 2017 showed Peru's comprehensive strategy to reduce chronic child malnutrition, including targeted nutrition programs and improved water and sanitation services. The research findings show that Peru has achieved one of the fastest reductions in stunting in the world, thanks to strong political commitment and the implementation of effective nutrition programs(6). However, while many countries have adopted such policies, challenges in implementation and accessibility remain major barriers (7). Despite efforts to reduce the prevalence of stunting through maternal and child health policies, the issue remains a significant challenge in many developing countries(8). Previous studies have shown variations in the effectiveness of these policies, which are influenced by factors such as uneven implementation, lack of inter-agency coordination, and challenges in addressing the underlying social determinants of stunting(9). Effective maternal and child health policies are critical to reducing the prevalence of stunting(10).

This study aims to critically evaluate the effectiveness of maternal and child health policies that have been implemented to address stunting in developing countries. The main objective of this systematic literature review is to identify and analyze successful policy strategies, as well as understand the context in which these policies are effectively implemented. In addition, this research also aims to evaluate the barriers that reduce the effectiveness of these policies and offer evidence-based solutions to overcome these challenges. While numerous reviews have explored maternal and child health interventions to combat stunting, most have focused narrowly on medical interventions without fully addressing the policy frameworks that underpin successful outcomes. Previous studies have often overlooked the socio-economic and cultural contexts that affect policy implementation and sustainability. This systematic review differentiates itself by examining not only the direct health policies but also their intersection with social determinants and structural factors that influence stunting reduction. By doing so, this research provides a comprehensive assessment of evidence-based policy strategies and actionable insights for enhancing their effectiveness, offering a valuable resource for policymakers and practitioners alike.

This investigation presents a substantial novel contribution to the discipline of maternal and child health policy by concentrating on initiatives aimed at mitigating stunting, a multifaceted and intricate health concern. The originality of this study resides in the methodical framework employed to review and scrutinize policies enacted across diverse nations, considering not only the dimensions of implementation but also the socio-economic and cultural contexts that affect their efficacy. Despite implementing numerous maternal and child health policies to reduce stunting, significant gaps remain in ensuring equitable access and effective policy execution. These gaps are often compounded by challenges in inter-agency collaboration and limited community engagement, which this review seeks to address by identifying evidence-based solutions for more inclusive and adaptive policy frameworks.

Furthermore, the research articulates a compelling rationale for the significance of this review in light of the pressing necessity for more effective and evidence-informed policies to combat stunting, which continues to pose a considerable challenge in numerous developing nations. By synthesizing data and outcomes from a variety of pre-existing studies, this research not only addresses a void in the scholarly literature but also furnishes insights that can be readily utilized by policymakers and practitioners within the domain.

METHOD

The dataset employed in this examination (executed in 2024) is derived from the metadata of scholarly articles indexed in Scopus spanning the years 2004 to 2023. Articles pertaining to the themes of maternal and child

health policies to reducing stunting framework were explicitly delineated. An exhaustive investigation was undertaken on Scopus utilizing two keyword sets, namely Maternal, Child, Health Policy and Stunting, within the domains of titles, keywords, and abstracts (TITLE-ABS-KEY ("maternal" "child" "health" "policy") AND TITLE-ABS-KEY (Stunting). Moreover, a meticulous manual validation of the search outcomes was performed to ascertain precision and to exclude articles that bore no relevance to maternal and child health policies aimed at mitigating stunting prevalence. The definitive compilation of the examined articles is readily available online in the format of an extensive bibliography that encompasses journal articles concerning maternal and child health policies focused on stunting reduction. Notwithstanding the possibility that particular articles related to specific topics may have been overlooked in our search methodology, we maintain that the probability of such articles substantially impacting our findings is minimal.

Scopus was subsequently directed to extract articles from our conclusive compilation solely for an in-depth analysis of publication year, article classification, and country of origin. The identities of the countries were obscured, and their respective publications were mapped geographically. Employing the VosViewer software, we conducted a keyword analysis and bibliometric assessment of the citations. Data collection activities within the Scopus database were executed on April 29, 2024. The findings were directly pertinent to the research topic, disclosing a total of 154 articles published from 2004 to 2023. The established criteria emphasized articles written in English, with the acquired data being exported in CSV format. VOSviewer version 1.6.17 was utilized for bibliometric analysis in this investigation. VOSviewer functions as a tool to create network-based maps and to visualize and scrutinize these maps. Its primary functionalities encompass the generation of maps based on network data and the visualization and exploration of input data within the generated maps. This study also has limitations regarding access to databases that only include publications on the Scopus database and articles in English, so it may not include all relevant research in other databases and languages.

RESULTS

Maternal and Child Health Policy in the Context of Stunting

Maternal and child health policies have long been recognized as a critical component in the fight against stunting. This public health problem involves complex interactions between nutrition, disease, and socio-economic factors. Previous studies have highlighted that interventions targeting maternal health during pregnancy and the postnatal period have a direct impact on children's nutritional status and development(11)(12). Programs that include nutritional supplementation(13), immunization and prenatal health care (14)have been shown to significantly reduce the prevalence of stunting in several developing countries (15). However, while many policies have been implemented, challenges in the implementation and adaptation of these policies across different social and cultural contexts remain a significant obstacle to consistently achieving the desired outcomes(16)(17).

Socio-Economic and Cultural Factors in Policy Implementation

The literature also shows that the effectiveness of maternal and child health policies in addressing stunting is highly dependent on the socio-economic(18) and cultural context in which they are implemented(19). Research by shows that social inequalities, including access to health and education services, as well as cultural norms that influence diet and health practices, contribute significantly to the success or failure of such policies(20). For example, in some communities, cultural constraints such as traditional food preferences that do not meet children's nutritional needs or lack of social support for pregnant women have been identified as limiting factors in the implementation of intervention programs(17). Therefore, understanding and integrating social and cultural factors into policy design and implementation is a crucial step to improving the effectiveness of stunting prevention programs(21).

Evidence-based Policy Analysis

Evidence-based approaches to maternal and child health policy development have been a primary focus of efforts to reduce stunting. Systematic reviews and meta-analyses have been widely used to assess the impact of various interventions, including nutritional supplementation programs, food fortification, and maternal education programs(22). However, while there is strong evidence of the effectiveness of specific interventions, many studies have highlighted that successful policy implementation often depends on local health system capacity and political commitment (23). Without strong institutional support and adequate resources, even the most evidence-based policies

may fail to achieve the desired results(21). Thus, a more holistic and comprehensive approach is needed, which considers not only scientific evidence but also practical implementation capabilities(24).

Challenges and Opportunities for Policy Improvement

While there has been much progress in the development of health policies to address stunting, challenges in implementation on the ground still need to be addressed. A study by Herawaty in 2022(21) shows that one of the main challenges is the need for coordination between sectors, especially between the health, education, and food sectors, which often work separately without solid integration. Funding and program sustainability are also significant constraints, especially in resource-limited countries. However, these challenges also present opportunities for policy innovation(25). A multi-sectoral and collaborative approach(26), involving various stakeholders, including local communities, can be an effective strategy in improving policy implementation and achieving a more significant impact in stunting reduction efforts. Future studies should focus on identifying and developing such strategies to strengthen maternal and child health policies around the world.

A review of the literature shows that existing literature indicates a robust correlation between maternal and child health policies and the incidence of stunting across various nations. Nutrition intervention initiatives that amalgamate nutritional education with health services have demonstrated encouraging outcomes(27). Children participating in these initiatives exhibit marked enhancements in their nutritional well-being(28). Nevertheless, in spite of the successes attributed to these initiatives, obstacles pertaining to financial resources and political endorsement persist. In the absence of sufficient backing, the sustainability of these initiatives over an extended period may be jeopardized.

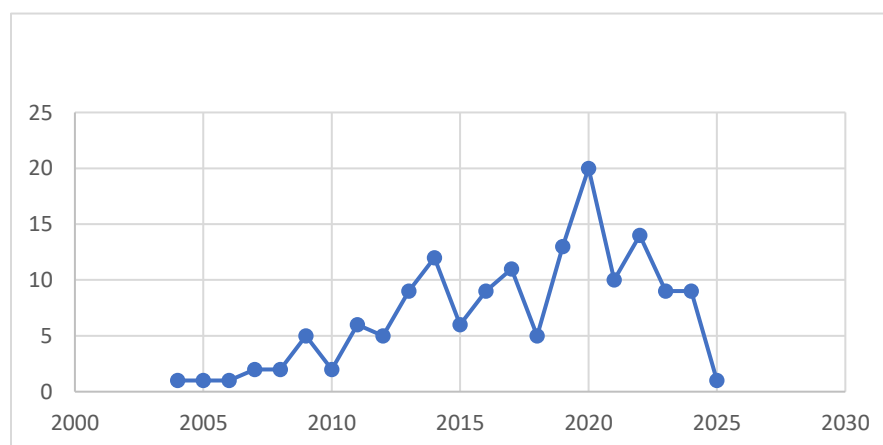


Figure 1. Document by years
Source: Scopus database

The graph above delineates the trajectory of publications or policies pertinent to maternal and child health, with a specific focus on mitigating stunting, spanning 2004 to 2023. In this framework, the graph indicates that before 2005, minimal activity was documented regarding policies or publications addressing stunting. Conversely, after 2005, a discernible escalation commenced, signifying an augmented awareness and focus on stunting, culminating in a notable apex in 2020 with 20 publications. This phenomenon may signify a proliferation in policy formulation, academic inquiry, or publication endeavors targeting stunting within the Asian context during this timeframe. Following the zenith in 2020, a downturn was observed in the years 2021-2023, and a more profound analysis suggests that the downturn in research output post-2020 may be ascribed to the reallocation of global health priorities, as countries redirected their resources and attention towards recovery efforts in the wake of the pandemic. The exigency to tackle immediate public health emergencies likely eclipsed enduring nutritional and maternal health challenges, including stunting.

Furthermore, inequities in research funding have disproportionately impacted low-income nations, constraining their ability to engage in and implement evidence-based policy innovations. Mitigating these inequities through enhancing international funding mechanisms and cultivating collaborative research networks could facilitate

more equitable and sustained research initiatives in stunting prevention. In summary, the trend indicates a heightened awareness and focus on stunting, particularly since 2013, notwithstanding a decline following the peak in 2020.

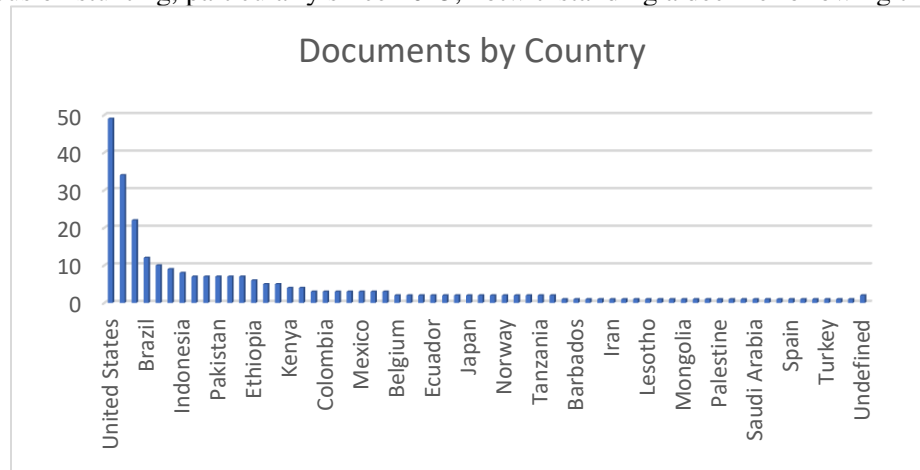


Figure 2. Documents by country
Source: Scopus database

The figure above shows countries' involvement in research or initiatives related to maternal and child health policies, especially in efforts to address stunting. The United States (49) and the United Kingdom (34) lead with the highest numbers, indicating their involvement in supporting global policies or contributing to international programs. India (22) came in third, which makes sense given the country's high burden of stunting. This number shows that India is focusing on developing local policies and initiatives to address stunting, which is a significant public health issue there. Asian countries such as Indonesia (8), Bangladesh (7), Pakistan (7), China (7) also show significant engagement, in line with the stunting burden they face. Although African countries such as Ethiopia (6) and Ghana (5) are represented in smaller numbers, this data reflects diverse global efforts to address stunting through maternal and child health policies, with differences in focus and resources across regions.

A more detailed exploration of patient demographics, such as age groups and socioeconomic status, reveals critical variations in the effectiveness of maternal and child health policies. Younger children from low-income families, for instance, are often at a higher risk of stunting due to inadequate access to healthcare and nutrition. Tailored interventions that consider these demographic factors can significantly enhance policy outcomes. Hospitals and governments can utilize these insights by adopting data-driven, community-specific health initiatives and communication strategies that position their services as inclusive and responsive to diverse population needs. Investing in targeted outreach programs, mobile health clinics, and culturally appropriate educational campaigns can also improve patient engagement and acquisition, reinforcing the reputation of healthcare providers as champions of maternal and child health.

High-income countries (HICs) dominate research on stunting primarily due to their superior research infrastructure, funding availability, and academic expertise. HICs possess well-established universities, research institutions, and access to advanced technologies, enabling them to conduct large-scale, high-quality studies. They also benefit from robust funding mechanisms, including government grants, private foundations, and international organizations supporting extensive global health research. In contrast, low- and middle-income countries (LMICs), where stunting is most prevalent, often face significant resource constraints, limiting their capacity to conduct and publish research. Additionally, HICs have a higher concentration of researchers with expertise in public health, nutrition, and epidemiology, allowing them to design and execute complex studies more likely to be published in high-impact journals. This creates a cycle where HICs continue to lead in research output while LMICs struggle to build the capacity to address stunting effectively.

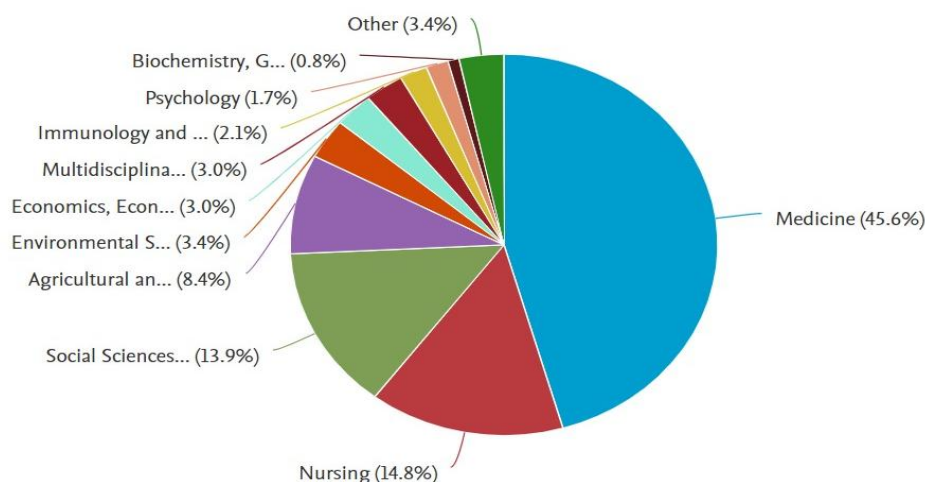


Figure 3. Documents by subject area
Source: Scopus database

The figure above shows the distribution of research fields in Scopus publications from 2004-2024 related to Maternal and Child Health Policies to Address Stunting. From the graph, it can be seen that the field of medicine dominates the publications with a proportion of 45.6%, indicating that the issue of stunting is mainly discussed in the context of medical health. Nursing ranks second with 14.8%, followed by social sciences with 13.9%, which highlights the social aspects of stunting policies and treatments. Agriculture and biological sciences also had significant contributions of 8.4%, indicating attention to environmental and nutritional factors in stunting. Environmental science and the miscellaneous category contributed 3.4% each, while fields such as economics and multidisciplinary contributed 3% each. The fields of immunology, psychology, and biochemistry made smaller contributions to this study. Overall, this analysis shows that research related to maternal and child health policy in addressing stunting is highly multidisciplinary, with a primary focus on medical, nursing, and social health aspects.

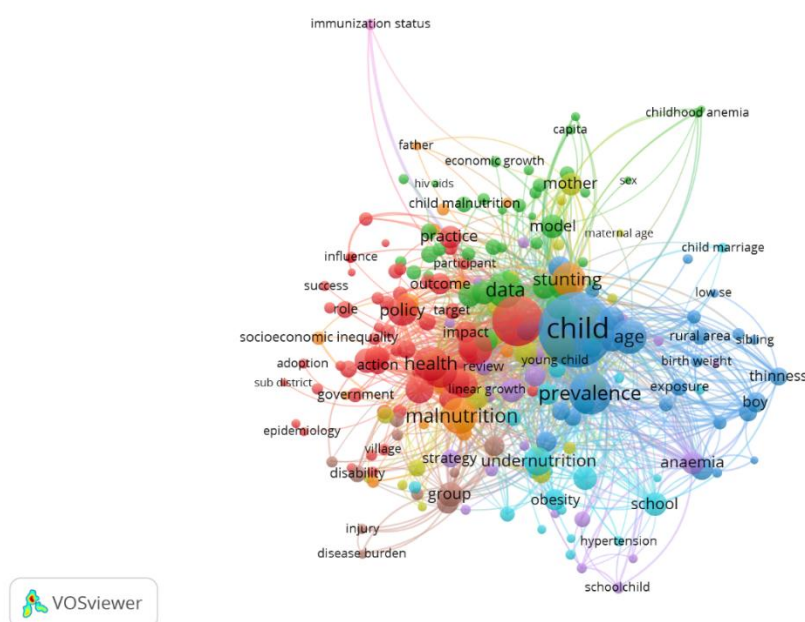


Figure 4. The map research about Maternal and Child Health Policies to Address Stunting
Source : VOSviewer apps

The image above is a research map related to "Maternal and Child Health Policies to Address Stunting" generated using VOSviewer. This map shows the relationship between keywords that often appear together in publications related to stunting, especially in the context of maternal and child health. The keywords "child," "stunting," "prevalence," and "malnutrition" appear predominantly in this map, indicating that the main focus of this research is on children's health conditions, especially in relation to the prevalence of stunting and malnutrition.

The red cluster includes words such as "policy," "impact," "health," "government," and "socioeconomic inequality," indicating that policy, health impact, and socioeconomic factors play an essential role in the stunting discussion. The green cluster focuses on words such as "mother," "age," "maternal age," and "childhood anemia," indicating attention to the role of motherhood and age factors in child health, particularly related to childhood anemia. The blue cluster includes terms such as "prevalence," "school," "anemia," and "rural area," highlighting the prevalence of stunting in rural areas and its relationship with anemia and access to education. The purple cluster seems to emphasize nutrition and related diseases such as "obesity," "hypertension," and "undernutrition," which show the relationship between stunting and other health conditions.

It can be seen that concepts such as "data," "action," "model," and "strategy" are closely connected, suggesting that this research also has a lot to do with data collection, policy action, and the development of models and strategies to address stunting. The connection between "socioeconomic inequality" with "policy" and "health" highlights that socioeconomic inequality has a significant impact on children's health, which in turn affects the effectiveness of stunting policies. This map shows that research in this area is highly multidisciplinary, covering policy, socioeconomic, health, education, and environmental aspects. This suggests that tackling stunting requires not only medical interventions but also a holistic approach involving public policy, education, and improved socioeconomic conditions.

DISCUSSION

The results of this systematic review show that various maternal and child health policies have been implemented in several countries to address stunting, with significant variations in their effectiveness. In Indonesia, for example, interventions such as the Balanced Nutrition Program and the Family Hope Program have shown positive results in reducing stunting rates. According to a report from the Indonesian Ministry of Health (2020), the prevalence of stunting in Indonesia decreased from 30.8% in 2018 to 27.67% in 2021 (29). This decrease shows that policies that focus on improving nutrition and access to health services can have a positive impact.

However, challenges remain in implementing this policy still need to be addressed. Many areas in Indonesia still face problems with accessibility to adequate health services and nutrition education. According to data from Statistics Indonesia (2022), around 40% of the population in remote areas still have limited access to essential health services(14). This shows that although policies have been implemented, structural challenges in the health system still need to be addressed to achieve better results. In Bangladesh, nutrition intervention programs that integrate nutrition education with health services have also shown promising results. Research by Banajee (2021) reported that children involved in the program showed significant improvements in their nutritional status(30). However, despite the success of these programs, challenges in terms of funding and political support still need to be addressed. With adequate support, these programs may be able to sustain in the long run.

In addition, it is essential to note that social and cultural factors also influence policy effectiveness. Research shows that social norms and inappropriate parenting practices can hinder the effective implementation of health policies(31). Therefore, an approach that involves the community in the planning and implementation of health programs is essential to ensure that policies are implemented in accordance with local needs(32). Finally, this review shows that while there has been significant progress in addressing stunting, more needs to be done. Existing policies need to be evaluated continuously to ensure that they remain relevant and practical. Engaging a wide range of stakeholders, including communities, policymakers, and health practitioners, it is hoped that more sustainable solutions can be found to address stunting in the region.

Some programs that contain maternal and child health policies in handling stunting in several countries: Indonesia: National Stunting Prevention Program Healthy Indonesia Program with a Family Approach (PIS-PK) Focuses on family health by visiting homes to provide health services, including stunting treatment(33). National Movement for the Acceleration of Stunting Prevention (GNPP) is a government initiative involving various sectors to reduce stunting, focusing on nutrition interventions, improved sanitation, and access to clean water (29). Non-Cash

Food Assistance (BPNT) is an assistance program that provides low-income families access to nutritious food, aiming to reduce the risk of stunting in children(29). India: Poshan Abhiyaan (National Nutrition Mission) The Poshan Abhiyaan program was launched in 2018 with the aim of reducing stunting, anemia, and malnutrition in children and pregnant women. The program involves providing nutritional supplements, promoting exclusive breastfeeding, and improving access to health services. Anganwadi Services, part of the Integrated Child Development Services (ICDS), provides supplementary food, immunizations, and essential health services to children under six years of age and pregnant women (34). Brazil with Bolsa Família Program is a social assistance program that provides cash transfers to low-income families on the condition that children receive immunizations, and pregnant women get regular health check-ups. The program significantly reduced stunting rates in Brazil by improving access to nutrition and health services(35).

National Strategy to Eliminate Malnutrition (NSEM) in Rwanda implemented a national strategy to reduce stunting, which includes nutrition interventions, promotion of exclusive breastfeeding, and public education on the importance of a healthy diet. One Cow per Poor Family Program (36) initiative provides dairy cows to low-income families, which helps increase access to animal protein and milk, which are essential for child growth. Bangladesh has National Nutrition Services (NNS); this program aims to reduce stunting through nutrition interventions such as the distribution of micronutrient supplements, promotion of a balanced diet, and provision of improved maternal and child health services. Community Clinics in Bangladesh are also expanding access to health services at the village level through community clinics that provide maternal and child health services, including stunting management (37). Ethiopia has a National Nutrition Program (NNP). Ethiopia launched this program to address malnutrition and stunting with a focus on supplementary feeding, promotion of breastfeeding, and improved access to clean water and sanitation. The Health Extension Program trains community health workers to provide nutrition education and essential health services in rural areas.

Based on the results of the analysis of publication trends related to maternal and child health policies in addressing stunting in various countries, there was an increase in awareness post-2005, where the period after 2005 marked a marked increase in the number of publications and policies on stunting. This likely indicates a growing awareness of stunting as an essential public health problem. International organizations, governments, and academic institutions may have started prioritizing stunting-related research and interventions during this period, resulting in more output in the form of publications and policies.

There was then a significant spike in 2020, with 20 publications/policies suggesting that this year was critical for stunting-related efforts. This spike could be due to several factors: first, global health priorities: 2020 may be the year that stunting is highlighted as part of the global health agenda, which may be linked to the UN Sustainable Development Goals (SDGs), which target the reduction of child malnutrition, including stunting. Second, increased funding and initiatives: There may be increased funding and initiatives dedicated to maternal and child health during this time, leading to a surge in research results and policy formation. Third, the influence of the COVID-19 pandemic may have indirectly influenced this surge as global health efforts were strengthened, including child health and nutrition efforts.

After 2020, there was an apparent decline in the number of publications or policies, suggesting some possible causes: the global focus may have shifted to other pressing health issues, such as the direct population impact of COVID-19, which diverted attention away from stunting. Achievement of targets in some countries or regions may have led to significant progress in reducing stunting, leading to a natural decline in new policies or publications. Reallocation of resources, including funding and workforce, may have been allocated to other public health issues, reducing the emphasis on stunting. The overall trend analysis reflects the increasing global awareness and focus on stunting, especially from 2013 onwards. Despite a decline after 2020, these trends show that stunting has become a significant public health issue over the past two decades. The sustained increase from 2005 to 2020 shows that stunting is consistently being prioritized, potentially resulting in better health outcomes in different regions, especially in Asia.

The dominance of the United States and the United Kingdom, with 49 documents, means that the United States took a significant lead, indicating that the country plays a vital role in global health initiatives, research funding, and policy development related to stunting. This leadership can be attributed to the country's robust research infrastructure, funding capabilities, and international collaboration. The UK followed with 34 documents, also demonstrating a strong commitment to addressing stunting. Their engagement may reflect their role as leaders in

global health policy and their commitment to supporting low-income countries through research and intervention strategies. India's position and relevance are ranked third with 22 documents, a position that is particularly important given the high burden of stunting in the country. This shows that India is actively engaged in developing and implementing policies to combat stunting, reflecting its prioritization of this public health issue. The significant number of documents also indicates a robust domestic research agenda aimed at addressing the country's complex stunting challenges.

Engagement of Other Asian Countries like Indonesia, Pakistan, Bangladesh, and China, these countries, with document counts ranging from 7 to 8, demonstrate a considerable level of involvement. Given the high prevalence of stunting in these regions, the engagement reflects efforts to develop localized strategies and policies to reduce stunting rates. The data implies a regional recognition of the need to address stunting through focused research and policy initiatives. African Countries' Contributions: Ethiopia and Ghana: Despite contributing fewer documents (6 and 5, respectively), the involvement of these African nations is critical. It indicates that countries with significant stunting burdens are participating in global research and policy-making efforts. The lower numbers might reflect resource constraints or the challenges faced by these countries in scaling up their research and policy frameworks. Nonetheless, their participation highlights the global nature of stunting as a public health issue and the collaborative efforts required to address it.

Global disparities and challenges, differences in focus and resources, and the variation in document counts among countries suggest disparities in focus, resources, and capacities to address stunting. While high-income countries like the United States and the United Kingdom lead in document production, low- and middle-income countries, particularly in Asia and Africa, are also actively engaged but at different scales. These differences could be due to varying levels of funding, research capacity, and prioritization of stunting in national health agendas. Undefined Category: the presence of an 'Undefined' category, albeit with a meager count, might indicate contributions from multinational organizations, collaborative research groups, or data that was not attributed to a specific country. This further underscores the global and collaborative nature of efforts to address stunting.

The distribution of research fields underscores the multidimensional nature of addressing stunting within maternal and child health policies, revealing that while the medical field dominates the discourse, the issue is far from being solely a medical concern. The substantial contributions from nursing and social sciences, accounting for 14.8% and 13.9%, respectively, reflect a recognition that stunting is deeply intertwined with social determinants of health, such as access to care, socioeconomic status, and cultural practices. The involvement of agriculture and biological sciences at 8.4% further highlights the critical role of nutrition, food security, and environmental conditions in preventing and treating stunting. The presence of environmental science, economics, and multidisciplinary studies, though smaller, emphasizes the need for holistic approaches that consider the broader ecological and economic contexts in which stunting occurs. This multidisciplinary nature suggests that effective stunting interventions require collaborative efforts across various sectors, integrating medical, social, environmental, and economic strategies to address the complex and interrelated factors contributing to stunting in children.

Future implications require sustained efforts. Despite the post-2020 decline, sustained efforts are needed to maintain the progress made in reducing stunting. Ensuring that stunting remains a priority on the public health agenda is critical for long-term success. Monitoring and evaluation are essential to monitor the outcomes of policies and publications from this peak period. Evaluating their impact on stunting rates and health outcomes can provide insight into the effectiveness of the strategies used. As the global health system recovers from the pandemic, there may be a refocus on stunting, significantly if progress in other areas stabilizes. This could lead to another surge in related publications and policies.

Future directions and considerations strengthen global collaboration to tackle stunting effectively; there is a need for more vital global collaboration, particularly in sharing knowledge, resources, and best practices. High-document-producing countries can play a crucial role in supporting and partnering with lower-income countries to enhance their research and policy-making capacities. Focused interventions, countries with high stunting burdens, especially in Asia and Africa, should continue to develop and implement targeted interventions based on local contexts. The data suggests that these regions are already engaged, but there is room for further intensification of efforts, possibly with increased support from global partners. Monitoring progress will be essential to monitor the impact of these documents, particularly in terms of real-world outcomes. The ultimate goal is to translate research and policy documents into tangible improvements in maternal and child health, particularly in reducing stunting rates.

Policy implications by emphasizing the need for a comprehensive multisectoral approach to reduce stunting, including encouraging collaboration between the health, education, and agriculture sectors to address the root causes of stunting. Policies should include evidence-based interventions such as maternal health education, improved nutrition programs, and access to clean water and sanitation services. In addition, it is important to involve communities in policy design and implementation to ensure cultural relevance and local support. Strengthening policy enforcement mechanisms requires robust monitoring and evaluation systems to ensure accountability and compliance across various sectors. Additionally, integrating sustainability strategies such as securing long-term funding, fostering cross-sector partnerships, and enhancing community ownership can bolster the resilience and effectiveness of stunting prevention initiatives.

CONCLUSION

This study reveals that maternal and child health policies play a crucial role in global efforts to address stunting, especially in developing countries. Although various interventions have been implemented with some success, as seen in the decline in stunting prevalence in Indonesia, significant challenges remain, particularly related to accessibility, policy implementation, and socio-cultural factors. This study emphasizes the need for a more holistic and sustainable approach in policy planning and implementation, which does not rely solely on medical interventions but also involves broader structural, social, and economic changes. With an evidence-based approach and multi-sector collaboration, there is an opportunity to improve existing policies and achieve more significant impact in tackling stunting worldwide. This review emphasizes the importance of continuous evaluation and policy innovation to ensure that efforts to tackle stunting remain effective and keep pace with evolving challenges.

This review emphasizes the importance of collaboration between various sectors, including health, education, and agriculture, in addressing stunting. With an integrated and evidence-based approach, it is hoped that more sustainable solutions can be found to address stunting, which is the region's most significant public health challenge. Governments should mandate the integration of comprehensive nutrition education into school curricula to instill healthy dietary practices from an early age. Financial incentives for local governments, tied to measurable stunting reduction outcomes, can encourage sustained efforts in prevention and intervention programs. Additionally, global funding mechanisms, including development grants and international partnerships, must be established to support low-income countries in implementing and scaling evidence-based stunting prevention strategies. Regional analysis reveals successful stunting reduction relies on context-specific approaches, strong political commitment, and community engagement. This underscores the need for tailored policies and multi-sectoral collaboration to address this global health challenge effectively. These policy recommendations provide a roadmap for creating a more resilient and equitable healthcare landscape that prioritizes the health and well-being of children worldwide.

AUTHOR'S CONTRIBUTION STATEMENT

P.R contributed to conceptualizing, methodology, to writing the original draft, editing the manuscript. P.S, M.T.A and M.A.B contributed to conceptualizing and methodology; J.A and K.A contributed to data collection, data curation, data analysis.

CONFLICTS OF INTEREST

The authors declares that there is no conflict of interest.

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BIBLIOGRAPHY

1. Vaivada T, Akseer N, Akseer S, Somaskandan A, Stefopoulos M, Bhutta ZA. Stunting in childhood: An overview of global burden, trends, determinants, and drivers of decline. *Am J Clin Nutr*. 2020;112:777S-791S.
2. Taib WRW, Ismail I. Evidence of stunting genes in Asian countries: A review. *Meta Gene* [Internet].

- 2021;30(June):100970. Available from: <https://doi.org/10.1016/j.mgene.2021.100970>
3. Suarayasa K, Wandira BA. The Relationship Between Children ' s Health Status and Stunting in Toddlers at Mamboro Health Center , Palu. 2024;2013(1):132–8.
4. Ssentongo P, Ssentongo AE, Ba DM, Ericson JE, Na M, Gao X, et al. Global, regional and national epidemiology and prevalence of child stunting, wasting and underweight in low- and middle-income countries, 2006-2018. Vol. 11, Scientific reports. 2021. p. 5204.
5. Malta DC, Romero-Sandoval N, Cardoso LSDM, Arcos P, Gualán M, Pescarini JM, et al. Sustainable Development Goals' health-related indicators for Brazil and Ecuador: an analysis for the period of 1990–2019. Public Health [Internet]. 2024;231:88–98.
6. Huicho L, Huayanay-Espinoza CA, Herrera-Perez E, Segura ER, Niño de Guzman J, Rivera-Ch M, et al. Factors behind the success story of under-five stunting in Peru: A district ecological multilevel analysis. BMC Pediatr [Internet]. 2017;17(1).
7. Hume-Nixon M, Kuper H. The association between malnutrition and childhood disability in low- and middle-income countries: systematic review and meta-analysis of observational studies. Trop Med Int Heal [Internet]. 2018;23(11):1158–75.
8. Dong B, Zou Z, Song Y, Hu P, Luo D, Wen B, et al. Adolescent Health and Healthy China 2030: A Review. J Adolesc Heal [Internet]. 2020;67(5):S24–31.
9. Brown A, Trimble M, Sokal-Gutierrez K, Fernald L, Madsen K, Turton B. Sugar-Sweetened Beverages, Foods of Low Nutritional Value, and Child Undernutrition in Cambodia. Int J Environ Res Public Health [Internet]. 2024;21(2).
10. Chakraborty R, Armijos RX, Beidelman ET, Rosenberg M, Margaret Weigel M. Household food and water insecurity and its association with diarrhoea, respiratory illness, and stunting in Ecuadorian children under 5 years. Matern Child Nutr [Internet]. 2024;
11. Ali M, Amin MR, Jarl J, Chisholm N, Saha S. Maternal health status and household food security on determining childhood anemia in Bangladesh -a nationwide cross-sectional study. BMC Public Health [Internet]. 2021;21(1).
12. Santas G, Eryurt MA. Distribution of child health indicators according to internal migration and various social variables in Turkey. Rural Remote Health [Internet]. 2020;20(1):1–9.
13. Wandera M, Åström AN, Okullo I, Tumwine JK. Determinants of periodontal health in pregnant women and association with infants' anthropometric status: a prospective cohort study from Eastern Uganda. BMC Pregnancy Childbirth [Internet]. 2012;12.
14. Palupi RA, Sulistiadi W, Asyary A. Public Health Policy Practice for Early-Age Marriage in Gunung Kidul, Indonesia: An Evaluation of Regent Regulation Practice on Child Health. In: null H, B. W, E. M, editors. E3S Web of Conferences [Internet]. Department of Health Administration and Policy, Faculty of Public Health, University of Indonesia, Depok, Indonesia: EDP Sciences; 2019.
15. Grundy J, Annear P, Chomat AM, Ahmed S, Biggs B-A. Improving average health and persisting health inequities - Towards a justice and fairness platform for health policy making in Asia. Health Policy Plan [Internet]. 2014;29(7):873–82.
16. Misselhorn A, Hendriks SL. A systematic review of sub-national food insecurity research in South Africa: Missed opportunities for policy insights. PLoS One [Internet]. 2017;12(8).
17. Smith SL, Shiffman J, Kazembe A. Generating political priority for newborn survival in three low-income countries. Glob Public Health [Internet]. 2014;9(5):538–54.
18. Hong SA, Winichagoon P, Khang Y-H. Rural–urban differences in socioeconomic inequality trends for double burden of malnutrition in Thailand 2005–2016. Eur J Clin Nutr [Internet]. 2020;74(3):500–8.
19. Cardenas E, Osorio AM, Barandica OJ, Pico Fonseca SM. Mind the Gap! Socioeconomic Determinants of the Stunting Urban-Rural Gap for Children in Colombia. Child Indic Res [Internet]. 2022;15(2):415–32.
20. Karlsson O, De Neve J-W, Subramanian S V. Weakening association of parental education: Analysis of child health outcomes in 43 low- and middle-income countries. Int J Epidemiol [Internet]. 2019;48(1):83–97.
21. Herawati DMD, Sunjaya DK. Implementation Outcomes of National Convergence Action Policy to Accelerate Stunting Prevention and Reduction at the Local Level in Indonesia: A Qualitative Study. Int J Environ Res Public Health [Internet]. 2022;19(20).

22. Arokiasamy P, Pradhan J. Measuring wealth-based health inequality among Indian children: The importance of equity vs efficiency. *Health Policy Plan* [Internet]. 2011;26(5):429–40. 63494d60948b
23. Heidkamp RA, Piwoz E, Gillespie S, Keats EC, D’Alimonte MR, Menon P, et al. Mobilising evidence, data, and resources to achieve global maternal and child undernutrition targets and the Sustainable Development Goals: an agenda for action. *Lancet* [Internet]. 2021;397(10282):1400–18.
24. Mugomeri E. Identifying Imperatives for an Effective Nutrition Surveillance Policy Framework for Maternal and Child Health in Lesotho. *Food Nutr Bull* [Internet]. 2018;39(4):608–20.
25. Kim C, Mansoor GF, Paya PM, Ludin MH, Ahrar MJ, Mashal MO, et al. Multisector nutrition gains amidst evidence scarcity: scoping review of policies, data and interventions to reduce child stunting in Afghanistan. Vol. 18, *Health research policy and systems*. 2020. p. 65.
26. Yang B, Huang X, Liu Q, Tang S, Story M, Chen Y, et al. Child nutrition trends over the past two decades and challenges for achieving nutrition SDGs and national targets in China. *Int J Environ Res Public Health* [Internet]. 2020;17(4).
27. Yaya S, Uthman OA, Kunnuji M, Navaneetham K, ... Does economic growth reduce childhood stunting? A multicountry analysis of 89 demographic and health surveys in sub-Saharan Africa. *BMJ Glob ...* [Internet]. 2020; Available from: <https://gh.bmj.com/content/5/1/e002042.abstract>
28. Kennedy E, Branca F, Webb P, Bhutta Z, Brown R. Setting the scene: An overview of issues related to policies and programs for moderate and severe acute malnutrition. *Food Nutr Bull* [Internet]. 2015;36:S9–14.
29. Muhamad Z, Nurdin SSI, Asnidar, Abbas MI, Katili DNO. Family Support for Short-Status Pregnant Women to Prevent Gestational Stunting: Phenomenological Studies. *J Public Heal Pharm*. 2024;4(2):182–8.
30. Banerjee S, Roy S, Pal M, Hossain MG, Bharati P. Nutritional and immunization status of under-five children of India and Bangladesh. *BMC Nutr* [Internet]. 2021;7(1).
31. Groce N, Challenger E, Berman-Bieler R, Farkas A, Yilmaz N, Schultink W, et al. Malnutrition and disability: Unexplored opportunities for collaboration. *Paediatr Int Child Health* [Internet]. 2014;34(4):308–14.
32. Dewey KG. Reducing child stunting: Moving forward on evaluating effectiveness of programs. *J Nutr* [Internet]. 2020;150(11):2843–5. Aa8c4b2b8
33. Ridlo IA. Frequency and specificity of health issues in local political campaigns. *Int J Heal Gov* [Internet]. 2023;28(4):368–82.
34. Narayan J, John D, Ramadas N. Malnutrition in India: status and government initiatives. *J Public Health Policy* [Internet]. 2019;40(1):126–41.
35. Assis AMO, Barreto ML, Santos NS, De Oliveira LPM, Dos Santos SMC, Pinheiro SMC. Inequality, poverty, and childhood health and nutritional conditions in Northeast Brazil. *Cad Saude Publica* [Internet]. 2007;23(10):2337–50.
36. Grajeda R, Hassell T, Ashby-Mitchell K, Uauy R, Nilson E. Regional Overview on the Double Burden of Malnutrition and Examples of Program and Policy Responses: Latin America and the Caribbean. *Ann Nutr Metab* [Internet]. 2019;75(2):139–43.
37. Kurata M, Takahashi K, Hibiki A. Gender differences in associations of household and ambient air pollution with child health: Evidence from household and satellite-based data in Bangladesh. *World Dev* [Internet]. 2020;128.