

# TRENDS AND INSIGHTS: A BIBLIOMETRIC ANALYSIS OF STUNTING POLICY RESEARCH IN THE SCOPUS DATABASE (2000-2023)

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## Abstract

*This study aims to analyze the bibliographic characteristics and content of stunting policy articles published in Scopus indexed journals by researchers around the world from 2000 to 2023. Data was taken from the Scopus database using the search term "Stunting AND Policy" in various categories, including article title, abstract and keywords. Content analysis and creation of visual representations of keyword occurrences were carried out using the VOSviewer program. This research identified 201 papers on stunting policies published over the last 23 years according to specified protocols. Key topics include stunting, child health, and nutritional status, with publications appearing in 32 journals discussing malnutrition. A collaborative effort involving 37 countries contributes to stunting policy research, and leading journals include Food and Nutrition, World Development, and Food Policy. Institutions in the United States stand out for having the highest number of publications by affiliated researchers. Global research on stunting has experienced significant growth in the last two decades. There is potential for interesting discussions in future research on stunting in relation to public health governance, policy and implementation. However, the limited research in Asia and Africa on this topic underscores the need for further exploration in this region.*

**Keywords:** *bibliometric, publication, stunting policy, scopus, vosviewer*

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## INTRODUCTION

Stunting is a condition of suboptimal growth in toddlers. Malnutrition in the First 1000 Days of Life (HPK) is one of the factors that contributes to linking local institutions to sustainability policies (Salman et al., 2023). In addition, according to (Aryastami and Tarigan, 2017) stunting is a persistent nutritional issue that affects the following generation and is brought on by a variety of reasons. The prevalence of stunting, is one of the nutritional issues that toddlers face today (Alqaoud and Al-Taiar, 2022). More than half of the world's stunted toddlers (55%), while more than a third (39%) live in Africa. South Asia has the highest proportion of stunted children under the age of five (58.7%), with Central Asia having the lowest (0.9%).

International studies and experience suggest that stunting can stifle economic growth and diminish labor market productivity, resulting in a loss of 11% of GDP (Gross Domestic Product) and a 20% reduction in adult worker income. Furthermore, stunting might lead to increasing inequality by reducing 10% of total lifetime income and producing intergenerational poverty (Zegeye et al., 2021). The generation that grows optimally, i.e. without stunting,

has a higher level of intelligence, which provides good competitiveness in development and the economy (Putri, Setiawan and Setiawan, 2022).

Furthermore, good growth can lessen the weight of the danger of degenerative diseases as a result of womb impacts. Diabetes, hypertension, heart disease, and kidney disease all have substantial medical costs. Thus, if stunting growth can be avoided, economic growth can be improved while avoiding the expenditures of treating degenerative disorders (Sari and Yusran, 2022). Handling stunting is a societal issue that involves the government's responsibility as a provider of public services. As a result, success in dealing with stunting must be linked to the government's role as a public service provider in developing legislation and public policies. Government actions can include educating the public, establishing community institutions, and providing health care.

This research aims to provide relevant data to understand global trends in stunting policy publications. This study aims to examine the bibliographic features and patterns of articles on stunting policy published in Scopus indexed journals by researchers around the world from 2000 to 2023, and to

conduct keyword co-occurrence analysis using VOSviewer.

## METHODOLOGY

This research uses a descriptive approach and relies on a literature database. The main source of information for this research is the Scopus database, which was chosen because of its recognition among academic. We used procedures outlined in previous research on social network analysis to explore the scientific literature related to the stunting policy theme. In Scopus, we conducted a search for “Stunting AND Policy” across categories, including article titles, abstracts, and keywords. We applied filters based on subject area (social science), document type (article), publication stage (final), source type

(journal), and language (English). Utilizing the VOSviewer program, we performed content analysis and generated a visual representation of keyword occurrences. In the next stage, we retrieved articles from the Scopus database and examined 201 publications categorized by relevance.

## RESULT AND DISCUSSION

### The Number of Research on Stunting from 2000 to 2023

The number of publications regarding stunting policies in the global social sciences shows a positive trend over the last 23 years, as depicted in Figure 1. However, there are fluctuations in the number of annual publications related to stunting policies in the Scopus database during this period.

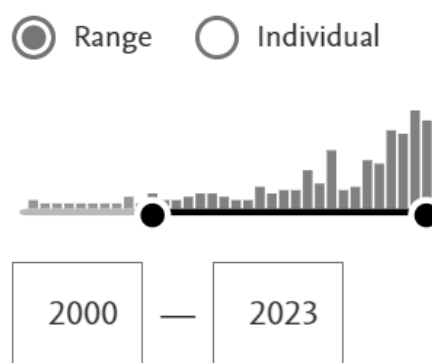


Figure 1.

Trends in stunting policy publications from 2000 to 2023 in the Scopus database

### Content Analysis of Stunting Publications

We conducted a content analysis of 201 publications, organizing

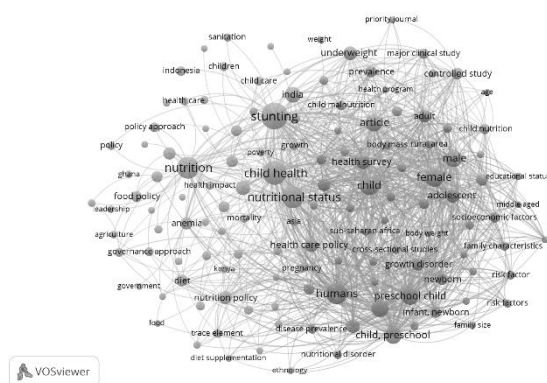
them by relevance. Next, co-occurrence analysis was performed using VOSviewer, using the analysis unit “all keywords” and the “full count” method. To maintain relevance, we set a frequency threshold of 5 occurrences, so that 134 out of 1355 keywords were identified by VOSviewer. The results of this analysis are depicted in Figure 2.

The keywords that appeared most frequently were stunting (72), child health (59), and nutritional status (49). Additionally, the analysis revealed four distinct groups. The initial cluster, depicted in red, consists of 65 keyword items, with “stunting” being the main keyword, characterized by its larger size compared to other nodes. Key words such as "child health", "nutritional status", "nutrition", and "nutrition policy" are often discussed in international articles related to

Geographically, this cluster includes regions such as Bangladesh, Ethiopia, Ghana, India, India, and Kenya.

The second group (green) includes 42 keywords, with terms such as “human,” “preschooler,” “infant,” and “developmental disorders” common. Although “stunting” is associated with “growth impairment,” the distance between the two indicates a weaker relationship compared to other keywords in the same group. This group mostly focuses on discussing stunting in African countries.

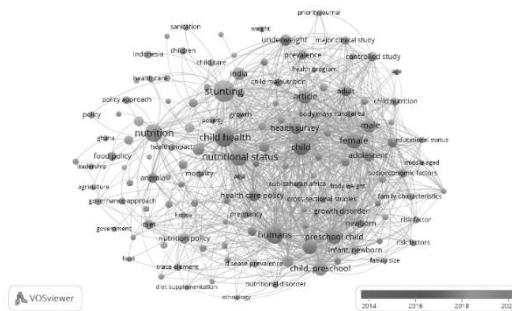
The third cluster, depicted in blue, displays 25 keywords, with “child,” “underweight,” “girl,” and “boy” commonly represented. The relationship between “stunting” and “health care policy” was clear in this group, and no specific geographical area was associated with this.



**Figure. 2.**  
**Network Visualization of Stunting Articles Published Globally in The Scopus Database from 2000 to 2023**

Figure 3 illustrates a visualization of the stunting policy literature showing the average number of publications from 2000 to 2014. Thematic shifts are evident in the literature on stunting, with previous extensive discussion revolving around terms such as “nutrition status,” “nutrition policy,” and “family characteristics.” This has evolved into a focus on “women” and

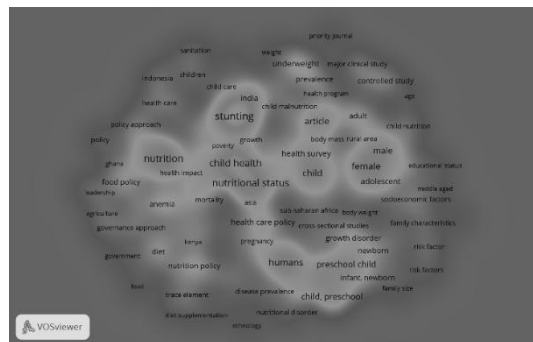
“child health,” and in the last five years, discussions have prominently featured “stunting” and “India.” However, the greater distance between nodes compared to other themes indicates weaker thematic relationships. This analysis also shows the existence of new but limited connections between stunting and policy literature.



**Figure 3.**  
**Overlay visualization of global stunting articles**

Density visualization analysis shows that studies that use keywords related to public administration, such as “health plan implementation,” “governance approach,” “policy approach,” and “policy implementation,” have relatively

limited impact. Although these studies form a group, they show limited linkages with other studies, as depicted in Figure 4. Therefore, future research on stunting could delve deeper into issues related to governance, policy, and implementation of public health.



**Figure 4.**  
**Density visualization of stunting articles from global scholars**

**Bibliography of Sources on Stunting in The Social Science**

We narrowed the search for articles to only include the social sciences domain, resulting in 201 publications. These articles are then arranged based on their relevance. Over the last two decades, Food and Nutrition Bulletin (United States) has emerged as the leading publisher of

articles containing the word “stunting” in the title, keywords and abstract, totaling 36 articles. Table 1 presents the top 10 journals that publish articles related to stunting. Three countries stand out with the highest number of publications: United Kingdom (45 journals), United States (36 journals), and Netherlands (17 journals).

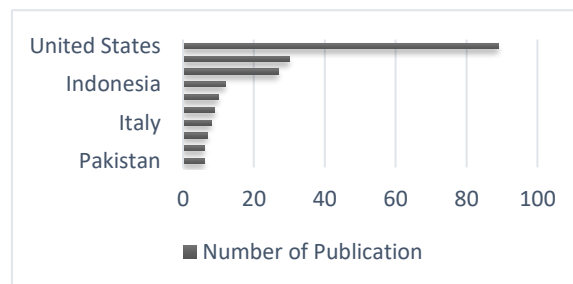
**Table 1.**  
**Top 10 Journals on Stunting Policy in The Subject Areas of Social Science**

Rank	Journal	Number of Publications	Country
1	Food And Nutrition Bulletin	36	United States
2	World Development	13	United Kingdom
3	Food Policy	12	United Kingdom
4	Food Security	12	Netherlands
5	Social Science and Medicine	9	United Kingdom
6	African Journal of Food Agriculture Nutrition And Development	9	Kenya
7	SSM Population Health	8	United Kingdom
8	Child Indicators Research	5	Netherlands
9	Economic And Political Weekly	4	India
10	Journal Of Development Studies	3	United Kingdom

**Combining Country Bibliographies in Social Science Research on Stunting**

From 2000 to 2023, the United States led the number of publications on

stunting, contributing 89 articles, followed by the United Kingdom with 30 articles and India with 27 articles.

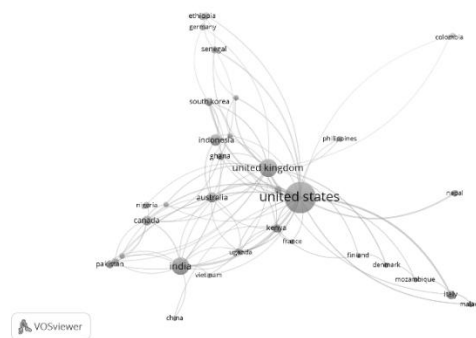


**Figure. 5.**  
**Top 10 Countries with Publications on Stunting**

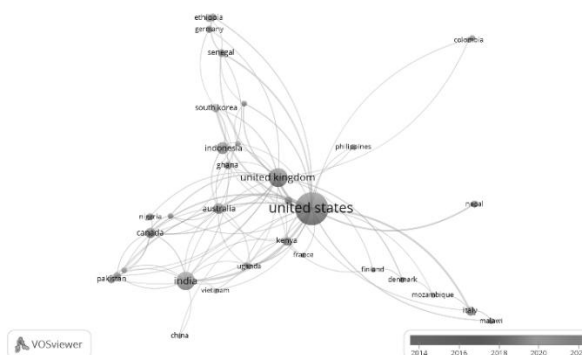
In the field of social sciences, Indonesia, Australia, South Korea and Italy are ranked in the top 10 countries with the highest number of stunting publications. The complete list of the top 10 countries is presented in Figure 5.

Examination of bibliographic mergers between countries with at least five documents identified 58 countries, with 14 countries meeting the specified threshold. Visualized in Figure 6, the network reveals five clusters. Larger

circles for a particular node indicate higher productivity. Specifically, the United States, India, and Senegal are in different groups. Some countries, such as Germany, Denmark, Switzerland, and Finland, do not collaborate with researchers in the United States, while other countries show collaboration. Additionally, the overlay visualization shows that most researchers from developing countries started publishing articles on stunting in the last 5 years, as depicted in Figure 7.



**Figure. 6.**  
**Network visualization of bibliographic coupling of countries for stunting research**



**Figure. 7.**  
**Overlay visualization of bibliographic coupling of countries for stunting research**

### Global Institutional Affiliates

Over the last 23 years, the International Food Policy Research Institute has emerged as the institution with the highest number of stunting publications by contributing 16 articles. The United States is represented by one of the top 10 institutions, as detailed in

Table 2. Johns Hopkins Bloomberg School of Public Health is the only institution in Africa. Institute of Economic Growth India and Korea University are institutions from Asia that are ranked at the top of 10 institutions that publish articles related to stunting in the field of social sciences.

**Table 2.**  
**Top 10 Institutions in Terms of Affiliation**

No	Institution	Document	Country
1	International Food Policy Research Institute	16	United States
2	Harvard T.H. Chan School of Public Health	14	United States
3	Tufts University	10	United States
4	Harvard Center for Population and Development Studies	8	United States
5	Institute of Development Studies, Brighton	8	United Kingdom
6	Johns Hopkins Bloomberg School of Public Health	7	Kenya
7	University College London	6	United Kingdom
8	Korea University	5	South Korea
9	UNICEF	5	United States
10	Institute of Economic Growth India	4	India

### DISCUSSION

Utilizing Scopus data, this research analyzes global research trends, journal performance, content themes, and bibliographic associations in the field of stunting. These findings indicate a significant increase in scientific publications regarding stunting throughout the world. Global content analysis identified four clusters with key topics including “nutritional status” (May and Timæus, 2014; Mulyaningsih et al., 2023; Moyeda-

Carabaza and Murimi, 2021; Julius Chegere and Sebastian Kauky, 2022; Drimie et al., 2023), “nutrition policy” (Agaba et al., 2016; Piperata, 2007; Kennedy et al., 2015; Bach et al., 2020), “family characteristics” (Keino et al., 2014; Liu, Wyshak, and Larsen, 2004), “women” (Bronte-Tinkew and Dejong, 2004; Dorélien, 2015; Efevbera et al., 2017; Fookan and Vo, 2021), and “child health” (Lungu et al., 2019; Augsburg and Rodríguez-Lesmes, 2018; Chalasani, 2012; Kim, Manley,



and Radoias, 2023). However, limited global research in the last 5 years has explored the relationship between stunting and governance in the social sciences. The Food and Nutrition Bulletin based in the United States published the highest number of articles containing the word “stunting”, followed by World Development from the UK.

The United States, United Kingdom and India emerged as the most prolific countries in terms of articles related to stunting. In particular, researchers from Asian countries have initiated research and publication activities in these three fields of study in the last 5 years. Although US-affiliated institutions dominate the top 10 rankings, the Johns Hopkins Bloomberg School of Public Health is the only African institution and Institute of Economic Growth India was the only Asian institution in the rankings.

Limitations of this research include the exclusive use of Scopus, ignoring other sources such as Web of Science, Crossref, or PubMed Central. Additionally, this analysis focuses only on social science subject areas, and certain VOSviewer analyzes, such as co-citations, are not used. Future bibliometric research on this topic is

expected to broaden its scope by combining multiple databases, subject areas, and analytical approaches for a more comprehensive understanding.

## CONCLUSIONS

Global research on stunting has experienced significant growth in the last two decades. Early studies emphasized “nutrition status”, “nutrition policy”, and “family characteristics”, which later evolved into a focus on “women” and “child health”, and more recently, discussions on “stunting” and “child health”. India.". Stunting research themes related to public health governance, policy, and implementation present interesting opportunities for future exploration in the social science domain. Although the United States dominates in terms of publications and affiliations, more research is needed from Asia and Africa on this topic.

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