

UNDERSTANDING FOOD SECURITY THROUGH THE LENS OF ISLAMIC FRAMEWORK: A RESEARCH TREND REVIEW

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Abstract:

Food security has become an increasingly urgent global issue, particularly when viewed through the multifaceted lens of policy and ethical frameworks such as Islam. Despite the vast body of literature addressing food-related challenges, there remains a significant gap in understanding how Islamic principles intersect with food security discourse. This study aims to explore the research trends and scholarly contributions to the field of food security from an Islamic framework perspective. Using a bibliometric approach, we employed Scopus as the primary database and applied an advanced search strategy incorporating the keywords “food,” “security,” and “policy.” The inclusion criteria were limited to peer-reviewed journal articles in English, published between 2009 and 2025. Data cleaning and refinement were conducted using OpenRefine, while trend visualization, co-authorship networks, and keyword co-occurrence analyses were carried out using Scopus Analyzer and VOSviewer software. A total of 886 relevant publications were retrieved and analyzed. The findings indicate a growing scholarly interest in food security topics, with prominent contributions from countries such as the United States, United Kingdom, and Australia. Key themes identified include agricultural policy, sustainability, climate change, and nutrition, while co-authorship analysis revealed strong international collaborations in this field. Despite the dominance of Western-centric perspectives, there is an emerging body of literature that aligns food security discourse with Islamic values such as justice, equity, and stewardship. This bibliometric review not only maps the existing knowledge landscape but also highlights the potential for

integrating Islamic ethical constructs into food security policy discussions. The study concludes by emphasizing the need for more interdisciplinary and faith-based approaches in future research to address both global challenges and cultural contextual solutions.

Keywords:

Food, Security, Policy

Introduction

Food security is a multifaceted concept that encompasses the availability, access, utilization, and stability of food supplies to ensure that all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and preferences for an active and healthy life (Neacsu, 2018)(Schmidhuber & Matuschke, 2010)(Souza & Rao, 2016). The importance of food security has been recognized globally, with various international declarations and goals aimed at eradicating hunger and ensuring food security for all (Mishra, 2024)(Casabona et al., 2010). However, achieving food security remains a significant challenge due to factors such as population growth, climate change, economic instability, and geopolitical conflicts (Zhou, 2014)(Makhanova et al., 2024)(Zulkifli et al., 2025).

Literature Review

The Food and Agriculture Organization (FAO) identifies four key dimensions of food security: availability, access, utilization, and stability (Neacsu, 2018)(Schmidhuber & Matuschke, 2010). Availability refers to the overall supply of food, which is influenced by agricultural production, food imports, and stock levels(Schmidhuber & Matuschke, 2010)(Souza & Rao, 2016). Access involves the ability of individuals to obtain food, which is determined by factors such as income, food prices, and distribution systems(Neacsu, 2018)(Schmidhuber & Matuschke, 2010). Utilization pertains to the proper biological use of food, requiring a diet that meets nutritional needs and is safe to consume(Neacsu, 2018)(Schmidhuber & Matuschke, 2010). Stability ensures that food availability, access, and utilization are consistent over time, without significant fluctuations due to economic or environmental shocks(Neacsu, 2018)(Schmidhuber & Matuschke, 2010).

Food security is not only a matter of food supply but also involves socio-economic and cultural dimensions. Factors such as poverty, income inequality, and social infrastructure play crucial roles in determining food access and utilization(Okpala et al., 2024)(Gordillo, 2012)(Khan et al., 2022). Cultural practices and preferences also influence food choices and dietary habits, which can impact nutritional outcomes(Okpala et al., 2024)(Khan et al., 2022). Additionally, the concept of food sovereignty emphasizes the importance of local control over food systems and the right of communities to define their own food policies (Gordillo, 2012)(Brunori et al., 2020).

The Maqasid al-shariah, or the higher objectives of Islamic law, provide a framework for understanding food security from an ethical and holistic perspective. This framework emphasizes justice, welfare, and the protection of fundamental human rights, aligning with the goals of sustainable development and social equity(Abdullah, 2021)(Rimbawan et al., 2025). The principles of Maqasid al-Shariah can be applied to address issues such as land use, agricultural productivity, and equitable distribution of food resources, ensuring that food security policies are just and inclusive(Rimbawan et al., 2025)(Bangsawan et al., 2024). By

integrating these principles, policymakers can develop strategies that not only enhance food security but also promote overall societal well-being and sustainability (Abdullah, 2021) (Rimbawan et al., 2025).

In conclusion, understanding food security through the lens of Maqasid al-Shariah offers a comprehensive approach that addresses both the material and ethical dimensions of food systems. This perspective can guide the development of policies and interventions that are not only effective in ensuring food security but also aligned with broader goals of justice and human welfare.

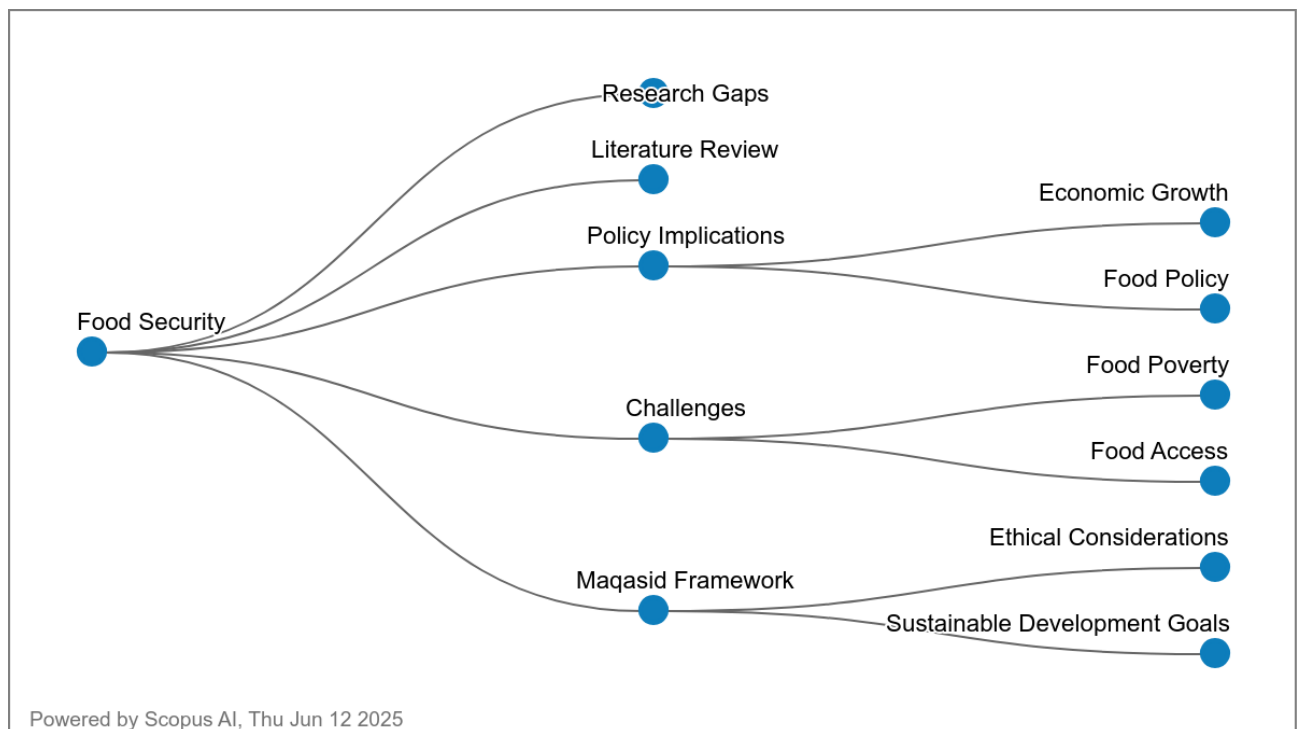


Figure 1: Review of Literature

Research Question

1. What are the key research domains within the field of food security, and how extensively have they been studied?
2. Which publications have received the highest number of citations in food security research?
3. Which ten countries lead in terms of publication volume on food security topics?
4. What are the most frequently occurring keywords in food security-related research?
5. In what ways do countries collaborate on food security research based on co-authorship patterns?

Methodology

Bibliometric studies involve the systematic collection, categorization, and analysis of bibliographic records from scholarly sources (Alves et al., 2021). This analytical approach goes beyond simple metrics - such as identifying frequently cited authors, dominant publication years, and leading journals (Wu & Wu, 2017) by incorporating more complex methodologies like document co-citation analysis. An effective literature review relies on a methodical and recursive strategy, including precise keyword selection, focused literature searches, and in-

depth data interpretation. Such an approach facilitates the construction of a comprehensive bibliographic foundation and supports the production of credible, evidence-based findings (Fahimnia et al., 2015).

In this research, the focus was placed on highly influential publications due to their role in shaping the conceptual landscape of the field. To ensure data reliability, the Scopus database was chosen as the main source, given its extensive and trusted academic coverage (Al-Khoury et al., 2022). To maintain academic rigor, only peer-reviewed journal articles were analyzed, intentionally excluding non-peer-reviewed sources such as books and lecture notes (Gu et al., 2019). Bibliographic data were extracted from Elsevier's Scopus platform, encompassing the time frame from 2009 to 2025 for subsequent bibliometric evaluation.

Data Analysis

VOSviewer is a bibliometric software known for its ease of use, developed by Nees Jan van Eck and Ludo Waltman at Leiden University in the Netherlands (van Eck & Waltman, 2010)(van Eck & Waltman, 2017). It is extensively employed for the analysis and visualization of scientific literature. The tool is particularly effective in producing intuitive network diagrams, identifying clusters among related items, and constructing density maps. Its flexibility supports the detailed exploration of various bibliometric structures, including co-authorship relationships, co-citation patterns, and keyword co-occurrence networks. With an interactive and regularly updated interface, VOSviewer allows for efficient and dynamic handling of extensive bibliographic datasets. Additionally, its ability to generate analytical metrics, adjust visual outputs, and support multiple data formats has made it a widely adopted resource for researchers examining complex scholarly environments.

A key strength of VOSviewer lies in its capability to convert complex bibliographic data into clear and interpretable visual outputs, such as maps and charts. Emphasizing network-based visualization, the software excels in detecting and organizing clusters, mapping keyword relationships, and producing density-based visual summaries. Its intuitive design caters to both beginner and advanced users, enabling effective navigation through large volumes of academic data. Ongoing software enhancements ensure that VOSviewer continues to serve as a leading tool in bibliometric research. Its compatibility with diverse datasets - ranging from co-authorship networks to citation linkages- reinforces its role as an essential and adaptable analytical instrument for generating meaningful academic insights.

In the current analysis, bibliographic data encompassing publication year, article titles, authors, journal names, citation counts, and keywords were extracted in PlainText format from the Scopus database, covering literature published between 2004 and December 2024. These data were processed using VOSviewer version 1.6.20. By employing the software's clustering and mapping capabilities, the study generated network maps that enabled the examination of relational structures within the dataset. VOSviewer applies a distinct method compared to the traditional Multidimensional Scaling (MDS) technique, by projecting items into a low-dimensional space where spatial proximity signifies the degree of similarity between items (van Eck & Waltman, 2010). While conceptually aligned with MDS (Appio et al., 2014), VOSviewer introduces a more appropriate normalization technique for co-occurrence data.

Unlike MDS, which often employs similarity measures such as cosine or Jaccard indices, VOSviewer utilizes the **association strength** (AS_{ij}) as a more suitable alternative. This measure is computed using the following formula (Van Eck & Waltman, 2007):

$$AS_{ij} = \frac{C_{ij}}{w_i w_j}$$

which is “proportional to the ratio between on the one hand the observed number of cooccurrences of i and j and on the other hand the expected number of co-occurrences of i and j under the assumption that co-occurrences of i and j are statistically independent” (Van Eck & Waltman, 2007).

Data Search Strategy

In conducting this bibliometric analysis on food security within the context of Islamic perspectives, a structured and systematic search strategy was applied using the Scopus database. The advanced search string was carefully formulated to capture relevant articles by targeting titles containing terms such as “food,” “meal,” or “feed” in combination with “security,” “secure,” or “insecurity,” and further refined with policy-related and Islamic terms like “policy,” “challenge,” or any word beginning with “Islam*.” The publication year filter was set between 2009 and 2025, and only journal articles (SRCTYPE: “j”) as refer on table 1. were included to ensure academic rigor and peer-reviewed sources. This comprehensive strategy ensured that the search was focused and relevant to the research objective.

To refine the data, specific inclusion and exclusion criteria were established. Only articles written in English, published between 2009 and 2025, and classified as journal articles were included in the analysis. Non-English publications, as well as other types of literature such as conference proceedings, books, and reviews, were excluded to maintain consistency and quality in the data set. After applying these filters, a total of 886 journal articles were identified as suitable for the bibliometric review. This curated dataset provides a solid foundation for analyzing trends, influential publications, keyword patterns, and collaborative research networks within the domain of food security from an Islamic perspective.

Table 1: The Search String

Scopus	TITLE ((food OR meal OR feed) AND (security OR secure OR insecurity) AND (policy OR challenge OR islam*)) AND PUBYEAR > 2009 AND PUBYEAR < 2026 AND (LIMIT-TO (SRCTYPE , "j"))
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Table 2: The Selection Criterion Is Searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Time line	2009 – 2025	< 2009
Literature type	Journal (Article)	Conference, Book, Review

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Result and Discussion

Documents by subject area

Scopus

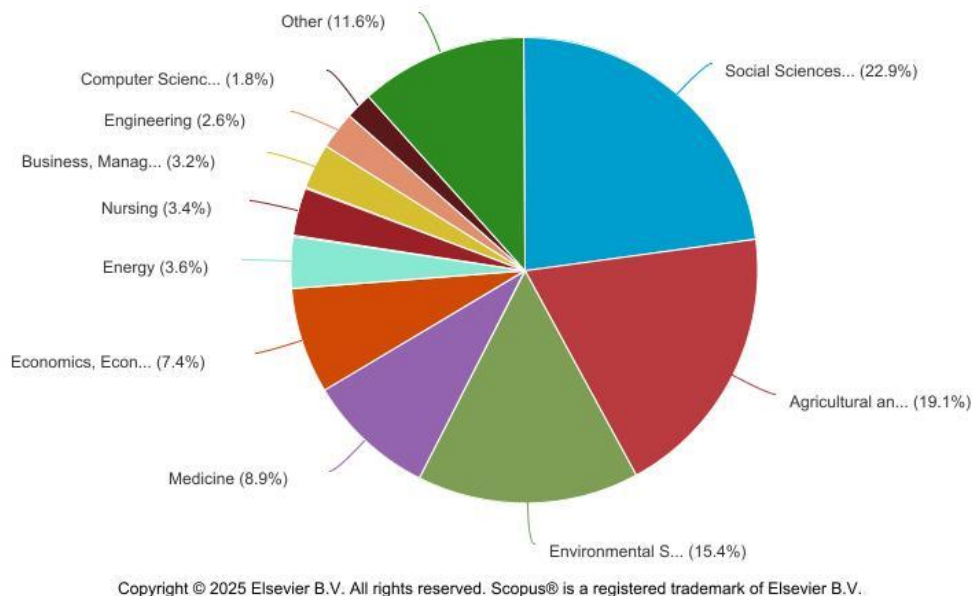


Figure 2: Document by Subject Area

Table 3: Subject Area

Subject Area	Number Of Document	Percentage (%)
Social Sciences	400	22.9
Agricultural and Biological Sciences	334	19.1
Environmental Science	268	15.4
Medicine	156	8.9
Economics, Econometrics and Finance	129	7.4
Energy	63	3.6
Nursing	59	3.4
Business, Management and Accounting	55	3.2
Engineering	46	2.6
Computer Science	32	1.8

The bibliometric data from 2009 to 2025 reveals that research on food security through the lens of an Islamic framework is predominantly concentrated in the Social Sciences (22.9%), suggesting a strong emphasis on socio-cultural, religious, and policy dimensions of food security. This is followed closely by Agricultural and Biological Sciences (19.1%), highlighting the significant attention given to practical food production and sustainability concerns. Environmental Science (15.4%) also plays a major role, indicating growing interest in ecological impacts and resource management in relation to Islamic perspectives on food systems.

Medicine (8.9%) and Economics, Econometrics, and Finance (7.4%) contribute moderately, pointing to concerns around public health, nutrition, and economic equity under Islamic values. However, contributions from Energy (3.6%), Nursing (3.4%), Business (3.2%), Engineering (2.6%), and Computer Science (1.8%) remain relatively limited, suggesting these areas are underexplored in the Islamic food security discourse. This trend underscores the need for more interdisciplinary integration, especially in technical and applied fields, to develop holistic and sustainable Islamic-based food security models.

Table 4: Most Cited Author

Authors	Title	Year	Source title	Cited by
Godfray H.C.J.; Beddington J.R.; Crute I.R.; Haddad L.; Lawrence D.; Muir J.F.; Pretty J.; Robinson S.; Thomas S.M.; Toulmin C.(Godfray et al., 2010)	Food security: The challenge of feeding 9 billion people	2010	Science	8824
Fisher M.C.; Hawkins N.J.; Sanglard D.; Gurr S.J.(Fisher et al., 2018)	Worldwide emergence of resistance to antifungal drugs challenges human health and food security	2018	Science	1102
Shiferaw B.; Smale M.; Braun H.-J.; Duveiller E.; Reynolds M.; Muricho G.(Shiferaw et al., 2013)	Crops that feed the world 10. Past successes and future challenges to the role played by wheat in global food security	2013	Food Security	936
Shiferaw B.; Prasanna B.M.; Hellin J.; Bänziger M.(Shiferaw et al., 2011)	Crops that feed the world 6. Past successes and future challenges to the role played by maize in global food security	2011	Food Security	935
Gomiero T.(Gomiero, 2016)	Soil degradation, land scarcity and food security: Reviewing a complex challenge	2016	Sustainability (Switzerland)	507
Misra A.K.(Misra, 2014)	Climate change and challenges of water and food security	2014	International Journal of Sustainable Built Environment	470
Mukhopadhyay R.; Sarkar B.; Jat H.S.; Sharma P.C.; Bolan N.S.(Mukhopadhyay et al., 2021)	Soil salinity under climate change: Challenges for sustainable agriculture and food security	2021	Journal of Environmental Management	448
Hasegawa T.; Fujimori S.; Havlík P.; Valin H.; Bodirsky B.L.; Doelman	Risk of increased food insecurity under stringent	2018	Nature Climate Change	373

J.C.; Fellmann T.; Kyle P.; Koopman J.F.L.; Lotze- Campen H.; Mason- D'Croz D.; Ochi Y.; Pérez Domínguez I.; Stehfest E.; Sulser T.B.; Tabeau A.; Takahashi K.; Takakura J.; van Meijl H.; van Zeist W.- J.; Wiebe K.; Witzke P.(Hasegawa et al., 2018)	global climate change mitigation policy				
Mbow C.; Van Noordwijk M.; Luedeling E.; Neufeldt H.; Minang P.A.; Kowero G.(Mbow et al., 2014)	Agroforestry solutions to address food security and climate change challenges in Africa	2014	Current Opinion in Environmental Sustainability	360	
Prosekov A.Y.; Ivanova S.A.(Prosekov & Ivanova, 2018)	Food security: The challenge of the present	2018	Geoforum	321	

The citation data of the top 10 most cited articles reveals a strong focus on the global and interdisciplinary nature of food security research. The most cited article by Godfray et al. (2010), published in *Science* with 8,824 citations, sets the benchmark by addressing the overarching challenge of feeding a growing global population. This reflects the foundational role of this work in shaping the modern food security discourse. High-impact journals such as *Science* and *Nature Climate Change* feature prominently, underscoring the scientific community's recognition of food security as a critical global issue intertwined with health, climate change, and policy. Notably, several articles, including those by Shiferaw et al., focus on staple crops like wheat and maize, which are central to global food systems, particularly in the Global South.

The remaining articles tackle key thematic areas such as soil degradation, climate change, water scarcity, and the emergence of antifungal resistance-issues that highlight the environmental and health dimensions of food security. The presence of articles from specialized journals like *Food Security*, *Sustainability*, and *Journal of Environmental Management* shows the increasing granularity and specialization of food security research. Interestingly, several articles published after 2014, such as those by Misra (2014) and Mukhopadhyay et al. (2021), have already garnered hundreds of citations, indicating the growing urgency and relevance of climate-resilient agricultural solutions. Collectively, these influential works emphasize the complex, interconnected nature of food security challenges and the need for integrated, multidisciplinary approaches-an important consideration when exploring the issue through specific frameworks, including Islamic perspectives.

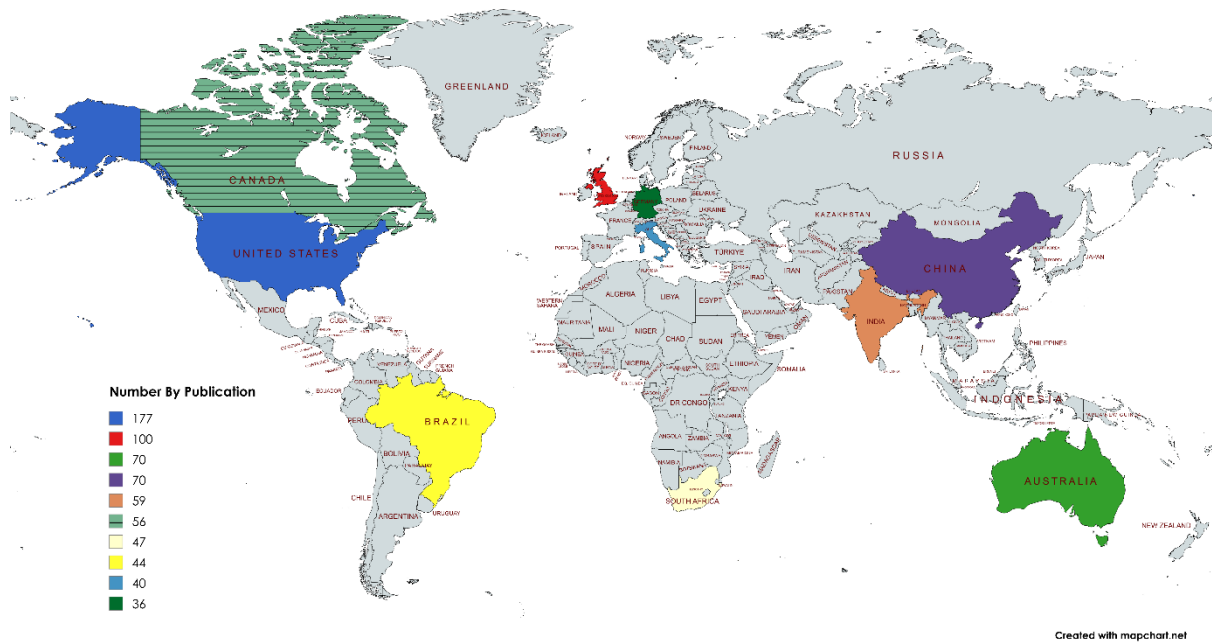


Figure 3: Map of Country Publication on Food Security

Table 5: Country Contributions on Food Security

Country/Territory	Number Of Document	Percentages (%)
United States	177	19.98
United Kingdom	100	11.29
Australia	70	7.90
China	70	7.90
India	59	6.66
Canada	56	6.32
South Africa	47	5.30
Brazil	44	4.97
Italy	40	4.51
Germany	36	4.06

The data indicates that the United States leads in scholarly contributions on food security within the Islamic framework, accounting for nearly 20% of the total publications. This dominance reflects the country's robust research infrastructure and its global leadership in interdisciplinary studies, including those addressing socio-religious dimensions of food systems. The United Kingdom follows with 11.29%, suggesting a strong academic interest in food policy, development studies, and religious perspectives, particularly within its multicultural and postcolonial academic contexts. Australia and China are tied at 7.90%, highlighting their increasing engagement with food security issues, possibly driven by climate vulnerabilities, agricultural research, and rising scholarly interest in global food ethics.

The presence of India (6.66%) and Canada (6.32%) reinforces the relevance of food security in regions with diverse populations and significant Muslim communities. South Africa (5.30%) and Brazil (4.97%) represent the Global South's emerging voice in the discourse, pointing to localized concerns over inequality, sustainability, and religious values in food access. European

Another notable trend is the rise of public health and socio-economic themes, with keywords like “nutrition” (39), “malnutrition” (18), “poverty” (17), “governance” (16), and “food access” (14) showing moderate occurrences and link strengths. The appearance of “Covid-19” (31, 79) highlights recent disruptions in food systems, which have amplified interest in resilience, vulnerability, and health security. Terms such as “public policy,” “food and nutrition security,” and “nutrition security” further demonstrate the evolving scope of food security research to encompass broader issues of equity, justice, and systemic support-areas that can be effectively framed within Islamic principles of social justice (‘*adl*) and collective responsibility.

Geographic and context-specific terms such as “Sub-Saharan Africa,” “South Asia,” “Bangladesh,” “Nigeria,” and “Pakistan” suggest that much of the research is situated within vulnerable or developing regions. This aligns with a wider scholarly interest in the socio-political dimensions of food security and development. However, relatively low frequencies for terms like “Islamic framework,” “Shariah,” or “halal” suggest that Islamic-specific perspectives are underrepresented in keyword networks. This gap presents an opportunity for future research to bridge the empirical findings with Islamic ethical, legal, and spiritual perspectives, positioning the Islamic framework not as peripheral but as an essential dimension in global food security discourse.

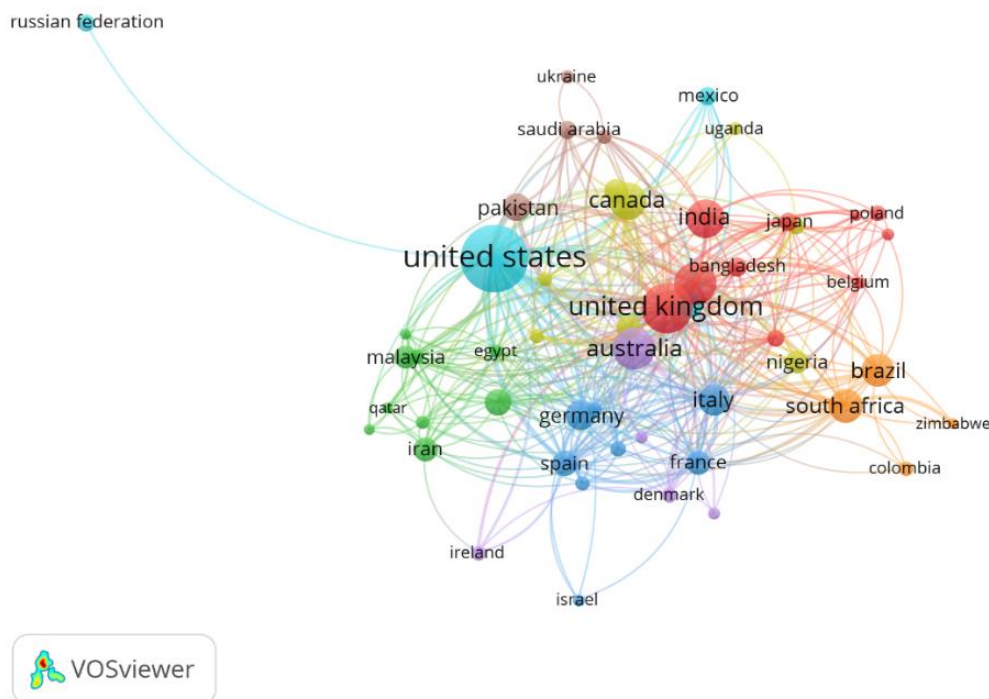


Figure 5: Network Visualization Map of Country Collaboration

The bibliometric analysis of co-authorship among countries reveals significant patterns in research collaboration on food security through an Islamic framework. The United States leads in document production (177) and total link strength (144), indicating its central role in collaborative networks. However, the United Kingdom, despite having fewer documents (100), boasts the highest citations (13,822), suggesting its research has greater academic impact. Australia and Italy follow, with notable total link strengths (83 and 63, respectively), highlighting their active participation in international collaborations. This disparity between document quantity and citation impact underscores that prolific output does not always correlate with influence, as seen in the UK’s outsized citation count despite fewer publications.

The data also reveals regional trends, with European nations like Spain, Germany, and France demonstrating strong collaborative ties (total link strengths ranging from 46 to 63). Meanwhile, developing countries such as Kenya and Ethiopia exhibit surprisingly high citations relative to their document counts (3,102 and 473 citations, respectively), possibly due to their focus on

pressing food security issues in Islamic contexts. In contrast, larger research producers like China and India show moderate citation rates (1,942 and 1,937) despite higher document volumes (70 and 59), indicating potential gaps in global recognition. Malaysia and Indonesia, key Muslim-majority nations, display modest outputs (22 and 28 documents), suggesting room for greater engagement in this niche field.

Notably, Switzerland stands out with an exceptional citation count (10,324) from just 12 documents, implying highly influential research, while Mexico's 14 documents yield 2,109 citations, further emphasizing quality over quantity. Conversely, countries like Nigeria and Iran, despite substantial outputs (21 and 24 documents), have lower citations (160 and 309), pointing to limited global reach or relevance. The minimal collaboration (total link strength ≤ 12) in regions like Latin America and the Middle East (e.g., Qatar, UAE) signals untapped potential for cross-border partnerships. These insights highlight the need for strategic alliances to amplify the impact of research, particularly in underrepresented Muslim-majority regions.

Conclusion

This study set out to investigate the global research landscape on food security through the lens of the Islamic framework, using bibliometric analysis to identify prevailing trends, influential contributions, and patterns of scholarly collaboration. The analysis addressed five key questions focusing on subject area distribution, highly cited works, contributing countries, popular keywords, and international research partnerships. Using a structured methodology involving the Scopus database, OpenRefine, and VOSviewer software, a refined dataset of 886 peer-reviewed journal articles published between 2009 and 2025 was analyzed.

The results revealed that most publications are concentrated in the social sciences and agricultural sciences, indicating an emphasis on socio-cultural, policy, and sustainability dimensions of food security. The most cited articles were predominantly global in scope, often addressing environmental, public health, and agricultural challenges. Western countries, particularly the United States and the United Kingdom, emerged as leading contributors, though Islamic-majority countries such as Malaysia and Indonesia remain underrepresented. Keyword co-occurrence patterns reflected themes such as agricultural policy, nutrition, climate change, and poverty, but showed limited direct engagement with Islamic-specific terms, highlighting a research gap. Collaboration networks further confirmed the dominance of Western-led research partnerships, though selected African and Asian countries demonstrated significant influence despite fewer publications.

This research contributes to the field by offering a systematic overview of how food security is approached globally and where Islamic values have or have not been integrated. It encourages greater inclusion of Islamic ethical perspectives in academic and policy discourse on food systems. The findings have practical implications for developing culturally relevant strategies and highlight the need for expanded collaborations across Muslim-majority regions. However, the study is limited by its reliance on a single database and English-language publications. Future research could expand the scope by incorporating non-English sources and qualitative analyses of Islamic content. Overall, the study underscores the importance of bibliometric methods in identifying knowledge gaps and informing future directions for interdisciplinary and culturally grounded research in food security.

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