

CLIMATE ACTION AND GLOBAL HEALTH DYNAMICS FOR THRIVING GLOBAL COMMUNITIES: A BIBLIOMETRIC ANALYSIS

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Abstract

The study aimed to review the evolution of scholarship on climate action and global health dynamics over the years. We identified trends, clusters and potential gaps in research at the nexus of climate change and health. Further, the study analyses co-occurrence, trend topics, thematic analysis, citation and geographic affiliations. The analysis was carried out as per the PRISMA Guidelines, using the PRISMA Statement 2020. We retrieved 500 peer-reviewed papers based on keywords search and exclusion criteria on the Scopus and Web of Science Databases. To inform evidence-based policymaking, our study highlights evolving themes, potential study gaps, geographic distribution, research clusters, trend topics and existing author collaborations. The core purpose of conducting the bibliometric analysis is to advance the curation of empirical and theoretical-based strategies for mitigating the adverse global effects of climate change on global health. Additionally, by bringing forth the gaps, the study informs the design of climate action and health interventions towards addressing the 21st Century challenges in human health.

Keywords: climate change, climate action, global health

JEL: I15

Introduction

Global shifts in climate change and health pose danger to vulnerable communities and collaborative efforts towards global resilience. In pursuing sustainable policy mechanisms towards managing externalities that would otherwise adversely affect public health outcomes, there has been traction on taxing carbon pollution, emission of greenhouse gases and promoting green financing initiatives (Khan et al., 2022). The evolution has sparked discussion on how health-care funding models could be incorporated in climate action interventions globally.

In the context of this study, climate change was discussed as a causative factor of food and water insecurity, rising global temperatures, heightened natural disaster/rising sea levels, and geopolitical shifts (Baars et al., 2023; Raval & Muralidharan, 2024). Purging from grey sources, 2024 was recorded as the hottest year- being the first to surpass the threshold of 1.5 degrees celsius against the backdrop of the US fossil fuel production and the Los Angeles wildfires (van Daalen et al., 2025). Pledges to limit global temperatures to 2 degrees celsius towards effective climate action and global health have witnessed frustrated efforts and are being significantly derailed by geopolitical developments (van Daalen et al., 2025). As a result, healthcare stakeholders are constantly ringing the alarm on accelerated negative health trends which they anticipate will rise with continued emissions and limited climate action. Conversely, the health sector also contributes to the rising carbon emissions, a reciprocal factor in the health and climate discourse. According to Beaglehole and Bonita. (2010); Koplan et al. (2009), factoring global crises including climate change; the adopted definition of global health is an action-oriented, collaborative and trans-national research and action geared towards promoting health for all.

The anticipated dire effects of climate change exacerbate the potential deterioration of human health impact thus, posing a complex scenario to the public and global health ecosystem. Specifically, attaining sustainability and net-zero goals is becoming more challenging. One school of thought argues that there has been a primary focus on health-related issues which constrains the impetus of environmental interventions (Liu, 2023). Other climate change consequences related to water and food security, have been linked directly to influences on human health (Sweileh, 2020). Also, the dominant role of drought and food insecurity in the rising cases of malnutrition as well as the emergence of greenhouse gases as a threat to human health exacerbate the situation. Studying climate change and environmental related issues at the nexus of human and global health is therefore, an imperative move for researchers and health industry stakeholders.

Arguably, go-for green health-care strategies promote decarbonisation and green development (Khan et al., 2022). To underscore the imperative role of climate action in advancing sustainable global progress in combating the effects of climate change and its anticipated spread, the WHO recognised and declared climate change as a top 10 Global Health Threat as of 2019, making agile climate action a necessity. The resolution created momentum towards resilient health systems; however, it remains a challenge to countries with weak systems and limited resources (Sweileh, 2020). To achieve the projected progress, data on Climate and human health prediction models need to be integrated at critical points to inform evidence-based policy making and sustainable investments. Further, to advance protective and preventive practices, agile and future-facing policy making require additional research activity against the backdrop of existing literature analyses.

Globally, developed and developing countries are experiencing the dire but varied effects of climate change and its influence on health, surmount pressure on global and national healthcare systems. Researchers' contemporary contribution to the discussion on climate change and health is therefore essential. In research bibliometric analysis is recommended as an effective avenue to review the quantity of research literature and inherent growth patterns/trends on chosen topics for thematic analysis and further action. Therefore, the paper seeks to provide a landscape of existing research activity on the effect of climate action on global health outcomes.

Research Objectives

- To map trends in literature on public health and climate action.
- To map and analyze the global health and climate action literature themes based on evolving clusters.
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Materials and methods

Research Framework

The study employed a descriptive bibliometric analysis to synthesize and identify trends and research gaps in literature on health and climate action. The research process comprised five key steps as discussed below. The first stage entailed defining the research topic and designing the specific research questions. We then proceeded to the second phase of data collection. Pertinent

literature was sourced on 7th April 2025 from Scopus and Web of Science (WOS) databases based on the keywords “climate action” and “health”.

Prior to data extraction, exclusion criteria were applied restricting data to open access, peer reviewed journal articles published in English. The resulting data was exported in plain text (WOS) and bibtext (scopus) formats compatible with the R-based Biblioshiny analysis software. Stage three involved merging the WOS and Scopus datasets, removing duplicate files and exporting the combined dataset. We then checked the combined dataset manually to ensure there were no incomplete entries. In the fourth stage, we conducted data analysis using the Bibliometrix R package (version 4.1.4) analytical tool. The process involved extracting networks and visuals to depict the trends and interconnections. The units of analysis included keywords, journal sources, authors and author countries. In the fifth stage, the visuals and networks were interpreted in line with the existing literature.

Data Analysis

The study data was obtained from Web of Science (WOS) and Scopus with an aim of capturing the research strides and gaps in research on the intersection of health and climate action. The initial search was conducted using the queries below: Scopus: TITLE-ABS-KEY (“climate action”) AND (“health”) and WOS: TS= (“climate action”) AND (“health”).

The Scopus query generated 1014 documents. We then used the exclusion criteria to eliminate some document types so that we could analyze peer reviewed journal articles. Using the document type exclusion criteria, 406 documents were eliminated including review articles (146), book chapters (110), conference papers (61), notes (44), editorial (19), books (11), letters (10), short surveys (3) and erratum (2). Following this initial exclusion, we remained with 608 documents. The documents written in other languages except English (17) were also excluded including Spanish (6), Chinese (3), Portuguese (2), German (2), Korean (1), Italian (1), French (1) and Danish (1) leaving a remainder of 591 documents. The last criteria involved limiting the articles to all open access leading to a final Scopus dataset of 402 documents.

The WOS query generated 761 documents. Like Scopus criteria, we used the document material exclusion criteria to eliminate 247 document types. The excluded documents included review articles (103), book chapters (10), proceeding papers (20), editorial material (55), letters (8), meeting abstracts (7), early access (40) and news item (4). Following the first exclusion, we were left with 514 documents to which we applied the language exclusion criteria. The documents published in other languages, except English (6), were eliminated. This included Spanish (4), German (1) and Korean (1) leaving a remainder of 508 documents. The last criteria involved limiting the articles to all open access leading to a final exportation of 365 documents from WOS. The documents from the two databases were merged using bibliometrics package into bibtext files on R studio and 267 duplicates were removed using Microsoft Excel. The final combined dataset contained 500 documents. The data collection process is illustrated in *figure 1 below*:

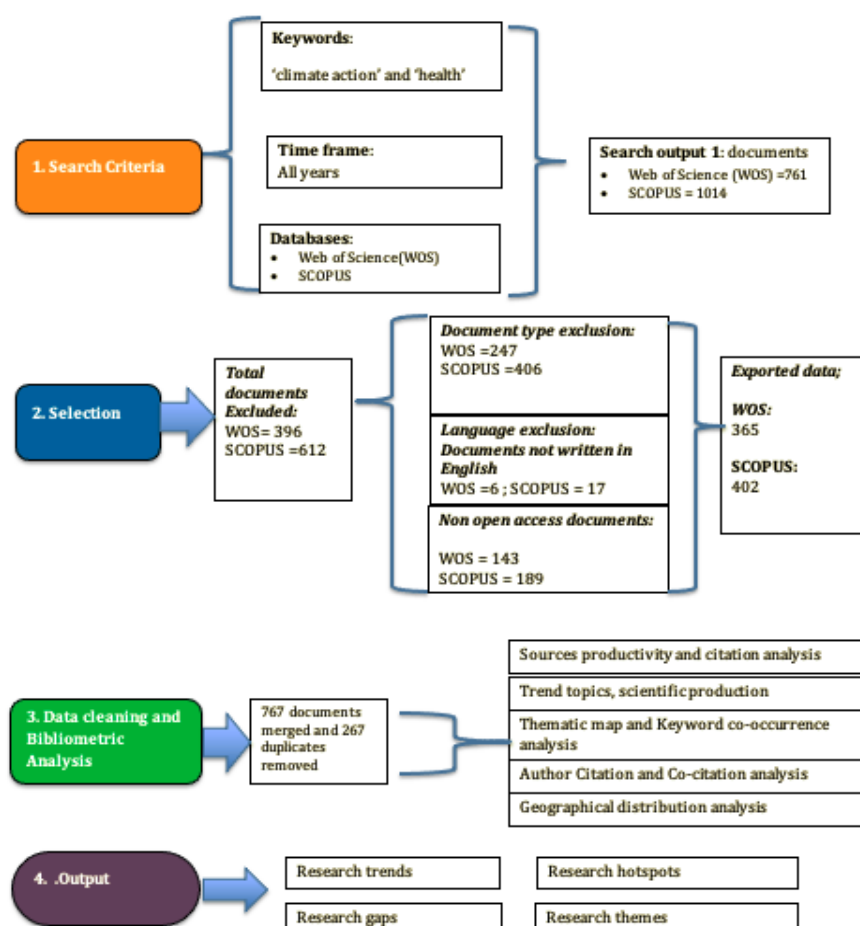


Figure 1: Research framework

Results on Trends in Literature on Public Health and Climate Action

Production/ Publication Trends

Figure 2 illustrates climate action and health peer reviewed scientific production for the period 2011 to 2024. In the period 2011-2017, the research output remained relatively low with minimal growth. This suggests the low combination of climate change and health as interdisciplinary research topics during this period. While the topics were gaining prominence individually as policy issues, (Santos & Bakhshoodeh, 2021; Sweileh, 2020), there was less interest on the intersection.

An upward trend began in 2019 and continued accelerating after 2020. The trend could be attributed to the increased acknowledgment of the bi-directional relationship between climate change effects and different aspects of health (Huda, 2024). Furthermore, the inclusion of health considerations in Conference of Parties (COP) meetings could explain the growing interest in this period. In 2021, during COP 26 the Alliance for Transformative Action on Climate and Health (ATACH) was formed and thereafter, during the following convention in 2023, COP 28 the resulting declaration on climate and health underscored the importance of incorporating health considerations in climate action policies. The Covid-19 crisis could have also played a role in accelerated research

attention in the period following 2020. The pandemic heightened discussions on the effect of a crisis on different systems including health systems. With the recognition of the impact of climate change related crises in increasing community vulnerabilities, researchers might have been prompted to explore climate related health vulnerabilities.

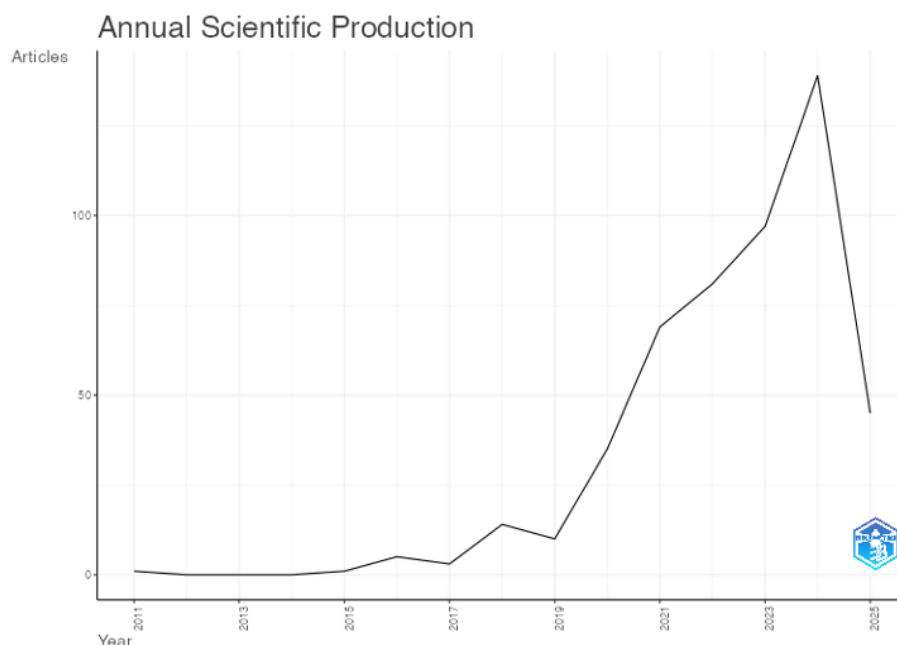


Figure 2: Annual scientific production

Prominent Topics

Figure 3 illustrates that the trending topics in studies on climate action and health during the period 2018-2024 include eco-anxiety, sustainable development goals, public health, adaptation, vulnerability and policy. In the period 2022-2024, eco-anxiety appeared as an increasingly discussed topic. This results from the growing recognition of mental health as an important dimension of climate change impact that needs consideration in climate action. Clayton (2020) and Cunsolo & Ellis (2018) highlighted that increased exposure to extreme weather events leads to possible climate anxiety affecting well-being. The susceptibility to eco-anxiety might be more pronounced among youth, resulting from heightened technological interaction. This influences the approach on environmental education and integration of psychological support into climate adaptation planning (Friedman et al., 2022).

As 2030 approaches, discussions regarding the feasibility of achieving SDGs within the remaining timeframe have intensified. Over the period 2021-2024, the trends in SDGs and sustainable development delineate the case in climate action and health studies. The interconnection between good health and wellbeing (SDG 3) and climate action (SDG 13) are progressively reflected in the noticeable trends. Climate action that addresses adverse climate change anchors positive public health impact, as part of the ripple effects of reduced air pollution disease burdens resulting from climate change. Consequently, the strain that the effects of climate change place on health-care systems is incrementally alleviated (Mir et al., 2021). Consequentially, infrastructural development of public health systems builds resilience and enhances ecosystem preparedness, thus reducing community vulnerability towards climate change impact. Thus, the susceptibility of climate action

frameworks towards alignment of health policies could be leveraged to establish pathways towards building sustainable societies by accelerating progress in contribution to SDGs.

Eminently, policy emerged as a significant trending topic in the period 2020-2023, thereby indicating that studies aimed at addressing climate and health-related challenges recognised its role in actionable research. Thus, we contend that the need for integrated policy frameworks targeting mitigation of climate change's adverse health outcomes cannot be understated. Moreover, effective policy developments that not only enhance climate change mitigation and adaptation strategies but also promote social wellness and community wellbeing are important (Raman et al., 2024). Policies pertaining to sustainable active transport, sustainable urban planning (green urban spaces) and renewable energy sources are deemed to be health promoting climate-oriented policies. These policy elements have gained scholarly focus regarding their nuanced benefits in community well-being, public health and communities climate resilience promotion (Lokmic-Tomkins & Bone., 2024; Lobe & Mudu., 2022; Filigrana-Villegas et al., 2019).

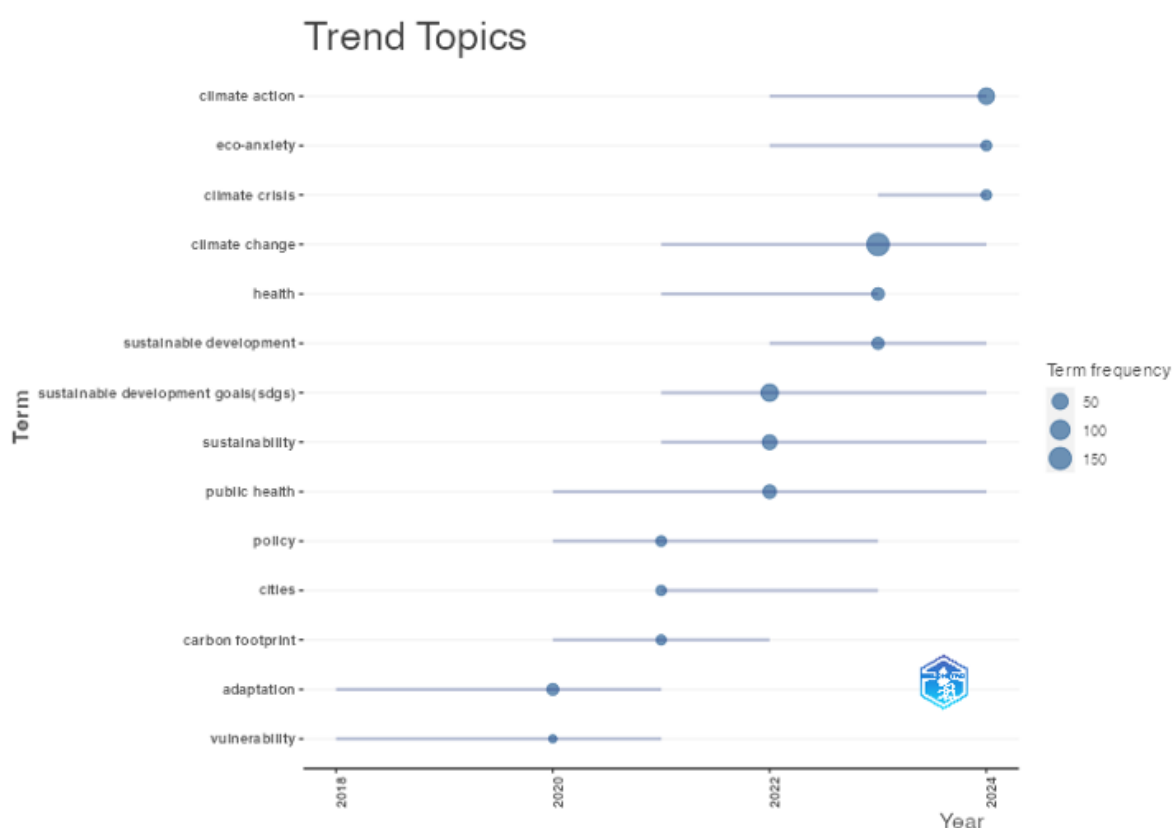


Figure 3: Trending topics

Comparison of Sources Productivity and Citations

Figure 4 demonstrates the output of our analysis of sampled journals. The results most authors of climate action and health literature chose the journal - Sustainability more frequently as the outlet for their published work. Based on the 8.8% frequency displayed. Thereafter, International Journal of Environmental Research and Public Health and the Journal of Climate Change and Health emerged as the next most preferred journal sources with a frequency of 3.8% and 2.8% respectively.

The cumulative frequency of top 11 journals was 25.8%, implying up to a quarter of all publications were from these 11 sources as shown in figure 4.

In terms of citations, Sustainability was still the highest ranked with a 11.03% frequency. Some journals including *National Science Review*, *Chem* and *Nature Communications* appear to be high-impact journal sources had made a huge impact despite registering fewer publications on the topic of climate action and health, a conclusion that is purely based on the citations. The *International Journal of Environmental Research and Public Health*, *Journal of Climate Change and Health* and *Environmental Research Letters* topped both in terms of citations and productivity. However, their ranking was different in the two lists. Ultimately, most of the sources that are ranked highly in terms of productivity and citations have scopes related to health and environmental matters.

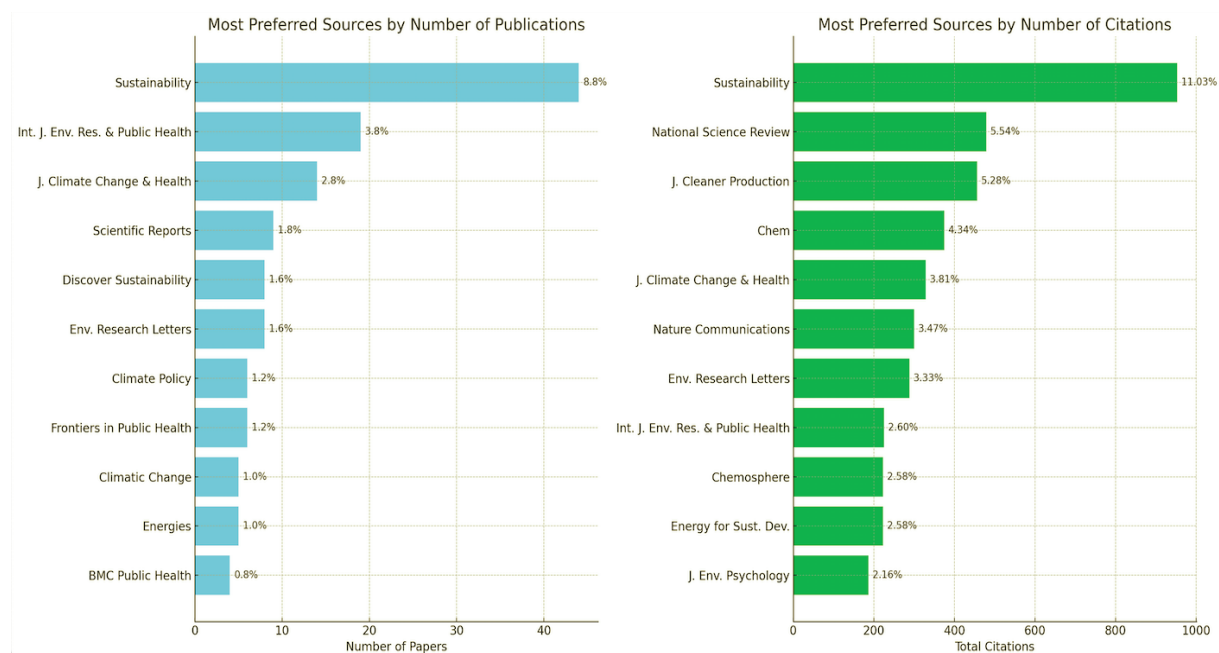


Figure 4: Most preferred sources by productivity and citations

Health and Climate Action Literature Themes and Evolving Clusters

Thematic Map

Thematic maps are a scientometric element that show scientific structure used in analytical approaches to thematic areas in research (Alkhamash, 2023; Casadei et al., 2023). The maps are useful in identifying creative clusters and key words evolution (Gargi et al., 2025). Figure 5.0 plots development degree against relevance degree according to Callon's density and centrality rank, quadrant IV shows the high relevance themes that are least developed yet extremely vital, these are the basic themes: climate change, climate action, sustainability, public health, adaptation, mitigation, environment and innovation; climate anxiety, eco-anxiety and mental health are tending from emerging/declining themes towards basic themes. The motor themes in quadrant I, are the most developed and imperative for the research topic including, air pollution, active transport, co-benefits, climate and COVID 19. Conversely, quadrant II are the niche themes that are highly developed but less relevant in the study context of climate action and health are Paris agreement, environmental sustainability, synergies, climate crisis; climate action, good health & well-being and

infrastructure are niche but tending towards motor themes. Centrally, quadrant III young people and sustainable development goals are emerging themes i.e. still underdeveloped but marginal.

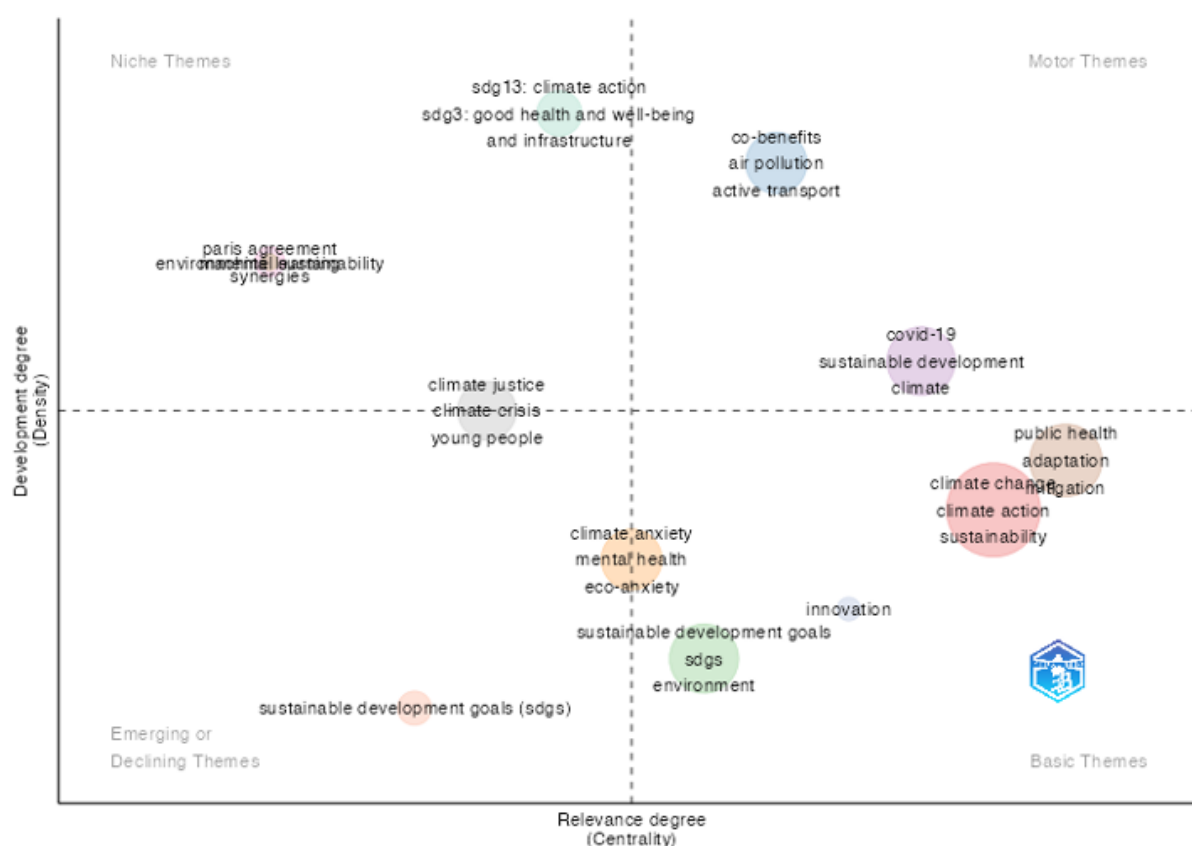


Figure 5: Thematic Map

Co-occurrence of keywords

Co-occurrence analysis is an element of keywords analysis that was used to evaluate the evolution of trending topics in literature on climate action and health (Gargi et al., 2025). We conducted a cluster analysis of the keywords used in the sampled documents. The co-occurrence of key words over the time period and across the analysed literature is illustrated in the network map in Figure 6 below. Further, the visualisation informs the distinct connections, based on established clusters that could inform the baseline understanding of climate action within the health context as shown in table 2.0.

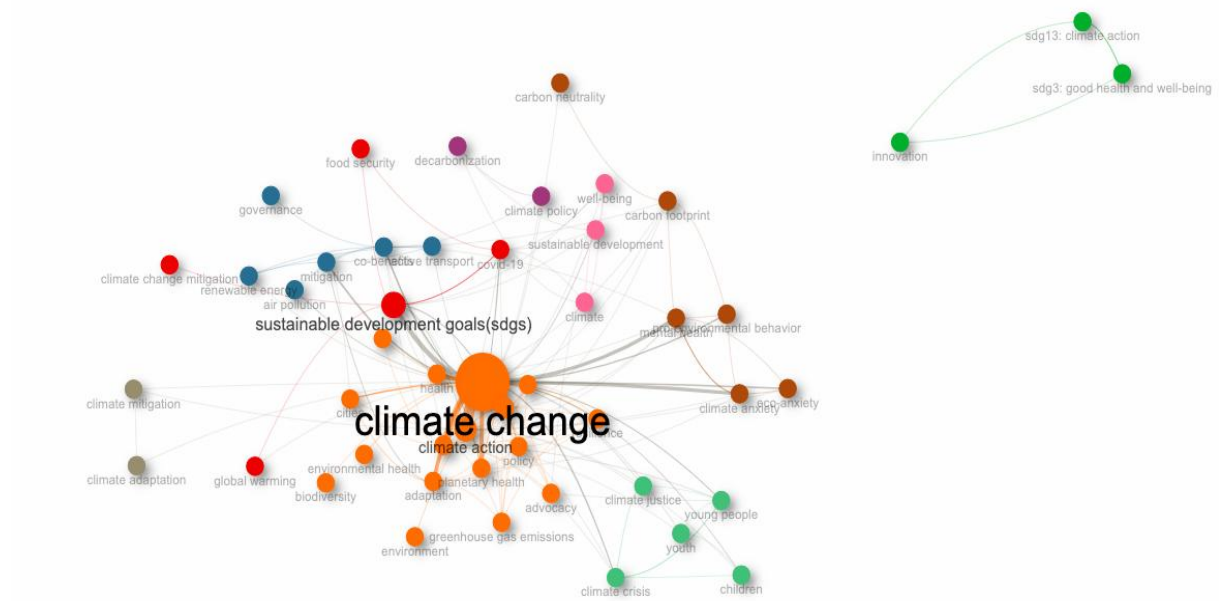


Figure 6: Keywords co-occurrence network

Table 1: Network Metrics Table

Node	Cluster	Between-ness	Closeness	PageRank
Sustainable development goals(sdgs)	1	74.9525661	0.0125	0.0383446
Covid-19	1	22.1265684	0.0120481	0.0236397
Global warming	1	0	0.0108695	0.0065333
Climate change mitigation	1	0	0.0080645	0.0045427
Food security	1	0	0.0081967	0.0060884
Co-benefits	2	51.635242	0.0125	0.0317892
Mitigation	2	1.13418676	0.0112359	0.018489
Air pollution	2	0	0.0107526	0.0079684
Active transport	2	0	0.0109890	0.0115644
Renewable energy	2	0	0.0109890	0.0092617
Governance	2	0	0.0080645	0.0054454
Sdg13: climate action	3	0	0.0217027	0.5

				0.0178190
Innovation	3	0	0.5	7
				0.0217027
Sdg3: good health and well-being	3	0	0.5	1
			0.0111111	0.0096762
Climate policy	4	14.2886723	1	2
			0.0081300	0.0101525
Decarbonization	4	1.375	8	9

We identified 9 distinct clusters mapped by differentiated colours on Biblioshiny. Out of the 9 clusters, table 1.0 shows 4 of the most prominent clusters.

Cluster 1 (n=5) comprises nodes including sustainable development goals (SDGs), global warming, Covid-9, global warming, climate change, and food security. The clustering of the 5 items shows the interconnection between environmental and health issues. Food security is greatly affected by deforestation, weather, temperature and other effects of climate change that hamper agricultural productivity across the world (Paudel et al., 2023). Additionally, efforts towards pandemic response and mobility affected supply chains and agricultural outputs. Cluster 2 (n=6) comprises keywords in adaptation and systems, covering mitigation, air pollution, active transport co-benefits, renewable energy and governance. The co-occurrence of these words in literature indicates the work done towards evolving strategies for reducing pollution, over-dependence of fossil fuels, reducing emissions of greenhouse gases and embracing compliance practices in order to improve the quality of air and consequently, contribute to better systemic health outcomes (Murphy, 2023).

The third cluster (n=3) was made up of the following nodes: climate action, health & well-being and innovation, which point to integrating innovation capabilities as a catalytic factor to technological advancements in the promotion of climate action, health and wellbeing, depicting progression in addressing challenges (Islam., 2025); whereas Cluster 4 (n=2) the nodes were: climate policy and decarbonisation demonstrate frameworks, mechanisms and the intricate roles to trade off distributional effects required in transition (D'Arcangelo et al., 2022).

Collaborative Networks and Geographic Distribution of Literature

Geographical Distribution

Based on collaboration networks on climate action and health topics, Figure 8 demonstrates the interconnectedness between countries. The data was interpreted in terms of nodes- representing countries, study prominence- based on the size of nodes, and levels of collaboration- shown by the thickness of each node. In the context of this study, the dense, intricate network of connections indicate diverse collaboration across geographies. Based on the illustration, convolutes were observed between the USA and UK, Germany and UK, Italy and Spain, USA and Australia, UK and China and Italy and Germany, thus these were deemed to be the main connections. The conclusion was based on the node sizes; these countries displayed the largest nodes implying their influential role in research and collaboration on climate action and health. The linked networks suggest possible co-authorship, coupled with joint research funding sources and shared data pools between identified developed countries. Countries including Switzerland, France, Sweden, Denmark and the Netherlands also showcased notable collaborations despite having representative smaller

nodes. Expanding global research interest in climate action and health was also observed in global south countries including South Africa, Brazil, Kenya, India, Nigeria, Ghana, Indonesia and Peru despite having relatively modest networks. Therefore, diverse geographical perspectives and research collaborations to develop effective solutions to these topics that are evidently posing world-wide challenges Agache are imperative (Agache et al., 2022).

Country Scientific Production

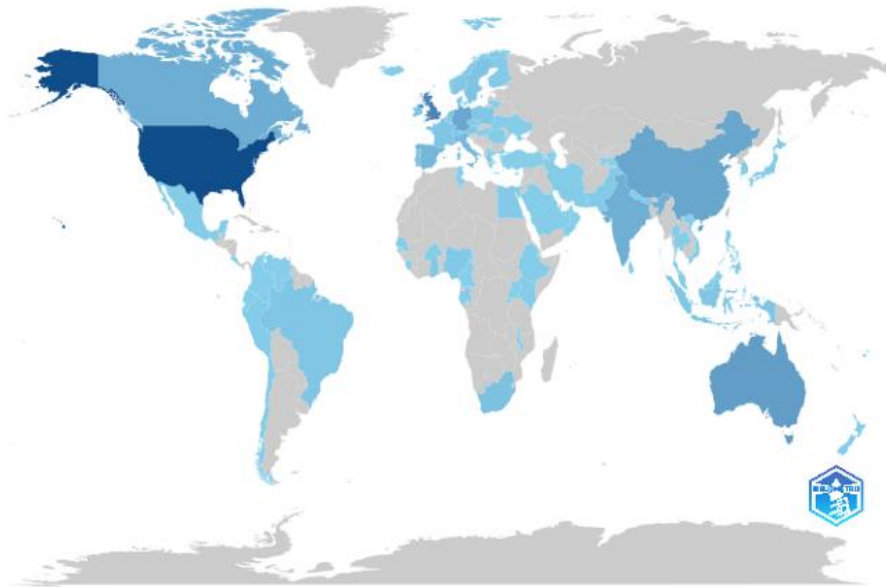


Figure 7: Country Scientific Production



Figure 8: Countries Collaboration Network

Table 2: Top 10 Countries in Scientific Production

	Country	Frequency (%)
1.	USA	21.246%
2.	United Kingdom	11.632%
3.	Australia	7.596%
4.	China	6.172%
5.	Germany	6.053%
6.	Canada	4.985%
7.	India	4.688%
8.	Spain	3.561%
9.	Italy	3.027%
10.	South Africa	1.958%

The country scientific production figure 7 and table 2 show the geographic coverage of the articles that were analysed in this study. Majority of the publications (70.92%) were focused on 10 countries. Of the analysed documents, 21.25% were from the USA, 11.63% from the United Kingdom region, while the remaining 38.04 % was distributed across Australia, China, Germany, Canada, India, Spain, Italy and South Africa. The distribution indicates country contexts in which climate action and health have been widely studied.

Discussion of Gaps

Over the analysed period (2000-2024) the bibliometric analysis shows accelerated research on climate action at the nexus of health. The research output highlights Thematic evolution, trend topics, shifts in authorship, collaboration, country-specific production and relevance. Significantly, the findings indicate research trajectory shifts from a curative/disease centred and communicable diseases lens to a non-communicable disease, preventive, resilient and sustainability focussed thematic direction.

Geographical Distribution

The landscape of research in climate action and health reflects that studies are more concentrated in the global North, underrepresentation noted in Sub-Saharan Africa, Latin America and the Pacific. Specifically, the United States, Germany, Australia, Canada and China have the bulk of authorship in the subject area, even though, these countries can be argued to have reaped the benefits of sustainable climate-health financing models, abundant research funding and long-standing, responsive health systems, amounting to functional climate and health ecosystems. However, climate change and health are global issues that require concerted efforts from both the global north and the global south. Regional imbalances in research production and in translation of actual research output marginalises the sustainability of strategies towards good health and well-being.

Evolution of Themes

Through keywords analysis (co-occurrence, thematic maps and clustering), themes like well-being, young people, governance, innovation, adaptation, climate justice are being integrated into recent

studies owing to their significance in action research. Rudimentary work done on climate change, pollution, public health, sustainable development and COVID-19 has been useful in driving future research. Climate anxiety, mental health, mitigation, and eco-anxiety require further exploration.

Research Networks and Author Collaborations

The analysis presents disintegrated efforts with siloed but limited collaborations. Unevenly distributed growth in research on climate action on health, limited collaborations, though the growth is inherent in complex approaches to climate action and health research, need for more mixed data, people and community-centred themes.

Conclusion

There are significantly quantifiable developments in research on interdisciplinary approaches and inter-sectional study topics, especially noted growing interest in health, climate and environmental studies. Therefore, advancements of theoretical stakeholder and ecosystem designs are imperative. Climate change, climate action, public health, global warming, temperature and global health have been quite popular themes in recent research. These areas have great implications for future directions of study, as the research is not exhaustive yet critical for strategy, programming and investment decisions.

Implications of the Study

To design responsive, resilient and effective health investment frameworks for thriving communities, both primary and secondary stakeholders such as health professionals, governments and other global policy makers, development organisations, researchers and innovators must internalise the in-depth nexus of climate action and global health studies. The analysis of evolving trends in research scoped key geographical interests, scholars, themes and major emerging research interests that key contributors can be engaged on for empirical and theoretical advancement.

In view of the growing interest of research in health and climate change, the study expands on issues revolving around understanding the dire effects of climate action on health and vice versa, to address a deeper layer of themes that could result in longer term impacts on health and environmental ecosystems. It also contributes to ongoing research discourse on next-level global health investment strategies by mapping key contributions, collaborations, exploring networks, trends and gaps that require further investigation and integration into plans of action.

References

Agache, I., Sampath, V., Aguilera, J., Akdis, C. A., Akdis, M., Barry, M., ... & Nadeau, K.C.(2022). Climate change and global health: a call to more research and more action. *Allergy*, 77(5), 1389-1407. <https://doi.org/10.1111/all.15229>

- Alkhamash, R. (2023). Bibliometric, network, and thematic mapping analyses of metaphor and discourse in COVID-19 publications from 2020 to 2022. *Frontiers in Psychology*, 13, 1062943. <https://doi.org/10.3389/fpsyg.2022.1062943>
- Baars, C., Barbir, J., & Paulino Pires Eustachio, J. H. (2023). How can climate change impact human health via food security? A bibliometric analysis. *Environments*, 10(11), 196. <https://www.mdpi.com/2076-3298/10/11/196#>
- Beaglehole, R., & Bonita, R. (2010). What is global health?. *Global health action*, 3, 10-3402. <https://doi.org/10.3402/gha.v3i0.5142>
- Casadei, P., Bloom, M., Camerani, R., Masucci, M., Siepel, J., & Ospina, J. V. (2023). Mapping the state of the art of creative cluster research: A bibliometric and thematic analysis. *European Planning Studies*, 31(12), 2531–2551. <https://doi.org/10.1080/09654313.2022.2158722>
- Clayton, S. (2020). Climate anxiety: Psychological responses to climate change. *Journal of anxiety disorders*, 74, 102263. <https://doi.org/10.1016/j.janxdis.2020.102263>
- Cunsolo, A., & Ellis, N. R. (2018). Ecological grief as a mental health response to climate change-related loss. *Nature Climate Change*, 8(4), 275-281. <https://doi.org/10.1038/s41558-018-0092-2>
- D'Arcangelo, F. M., Levin, I., Pagani, A., Pisu, M., & Johansson, A. (2022). A framework to decarbonise the economy. *OECD Economic Policy Papers*, (31), 0_1-88.
- Filigrana-Villegas, P., Levy, J., Gauthier, J., Batterman, S., & Adar, S. (2019). Air pollution and health benefits from cleaner vehicles and increased active transport: a health impact assessment approach for Seattle, WA. *Environmental Epidemiology*, 3, <https://doi.org/122.10.1097/01.EE9.0000607076.27841.1c>
- Friedman, S., Morrison, S. A., & Todd, L. (2024). The messy middle: an exploratory study of adolescent environmentalists in North Carolina. *Environmental Education Research*, 30(9), 1604-1618.
- Gargi, B., Painuli, S., Gururani, P., Semwal, P., & Kumar, S. (2025). A bibliometric analysis of research conducted in the past 118 years on global prospective, scientific mapping, and emerging trends in wild fruits. *eFood*, 6(2), e70037. <https://doi.org/10.1002/efd2.70037>
- Islam, H. (2025). Nexus of economic, social, and environmental factors on sustainable development goals: The moderating role of technological advancement and green innovation. *Innovation and Green Development*, 4(1), 100183. <https://doi.org/10.1016/j.igd.2024.100183>
- Khan, H. R., Usman, B., Zaman, K., Nassani, A. A., Haffar, M., & Muneer, G. (2022). The impact of carbon pricing, climate financing, and financial literacy on COVID-19 cases: Go-for-green healthcare policies. *Environmental Science and Pollution Research*, 29(24), 35884–35896. <https://doi.org/10.1007/s11356-022-18689-y>
- Koplan, J. P., Bond, T. C., Merson, M. H., Reddy, K. S., Rodriguez, M. H., Sewankambo, N. K., & Wasserheit, J. N. (2009). Towards a common definition of global health. *The Lancet*, 373(9679), 1993-1995.
- Liu, P. (2023). An assessment of financial mechanisms for green financial recovery and climate change mitigation: The case of china. *Economic Change and Restructuring*, 56(3), 1567–1584. <https://doi.org/10.1007/s10644-023-09483-y>
- Lobe Ekamby, E. S., & Mudu, P. (2022). How many trees are planted in African cities? expectations of and challenges to planning considering current tree planting projects. *Urban Science*, 6(3), 59. <https://doi.org/10.3390/urbansci6030059>
- Lokmic-Tomkins, Z., & Bone, A. (2024). Global health and climate action: achievements and imperatives from COP28. *Public health research & practice*, 34(2). <https://doi.org/10.17061/phrp3422412>

- Mir, K. A., Purohit, P., Cail, S., & Kim, S. (2021). Evaluating Health Co-benefits of Air Pollution Control and Climate Change Mitigation Policies for Pakistan.
- Murphy, M. P. (2023). Creating an ecosocial welfare future: making it happen. Policy Press.
- Paudel, D., Neupane, R. C., Sigdel, S., Poudel, P., & Khanal, A. R. (2023). COVID-19 pandemic, climate change, and conflicts on agriculture: A trio of challenges to global food security. *Sustainability*, 15(10), 8280. <https://doi.org/10.3390/su15108280>
- Raman, R., Leal Filho, W., Martin, H., Ray, S., Das, D., & Nedungadi, P. (2024). Exploring sustainable development goal research trajectories in small island developing states. *Sustainability*, 16(17), 7463. <https://doi.org/10.3390/su16177463>
- Raval, S., & Muralidharan, K. (2024). Climate change and public health dynamics: A bibliometric study with comprehensive review. *Current World Environment*, 19(2), 576.
- Rusydiana, A. S. (2021). Bibliometric analysis of journals, authors, and topics related to COVID-19 and islamic finance listed in the dimensions database by biblioshiny. *Science Editing*, 8(1), 72–78. <https://doi.org/10.6087/kcse.232>
- Sweileh, W. M. (2020). Bibliometric analysis of peer-reviewed literature on food security in the context of climate change from 1980 to 2019. *Agriculture & Food Security*, 9(1), 1–15. <https://doi.org/10.1186/s40066-020-00266-6>
- van Daalen, K. R., Kriit, H. K., Chen-Xu, J., Semenza, J. C., Nilsson, M., Dasandi, N., Jankin, S., Markandya, A., Antó, J. M., & Rocklöv, J. (2025). Europe's climate leadership in an 'america first' era. *The Lancet Regional Health–Europe*, 51
- Wang, S. (2022). Green financial health risk early monitoring of commercial banks based on neural network model in a small sample environment. *Journal of Environmental and Public Health*, 2022. <https://doi.org/10.1155/2022/4613088>
- Wang, G., Wu, X., and Li, Q. (2022). A bibliometric study of news discourse analysis (1988–2020). *Discour. Commun.* 16, 110–128. <https://doi.org/10.1177/17504813211043725>
- Zhang, Z., & Ding, Y. (2023). The impact of green financial development on stock price crash risk from the perspective of information asymmetry in chinese listed companies. *Environmental Science and Pollution Research*, 30(37), 87199–87214. <https://doi.org/10.1007/s11356-023-27771-y>

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