

Navigating public health challenges in health insurance markets: a bibliometric analysis of accessibility and affordability patterns

IIMBG Journal of
Sustainable
Business and
Innovation

145

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Received 6 August 2025
Revised 4 January 2026
Accepted 12 February 2026

Abstract

Purpose – Health-care affordability and accessibility represent as a complicated worldwide concern, creating major impediments to universal access to health care, eventually impacting individual health outcomes and economic stability. The research seeks to analyze the scholarly literature on accessibility and affordability of health insurance between 2000 and 2024 through a comprehensive scientific mapping approach.

Design/methodology/approach – Bibliometric analysis was conducted on 498 research papers based on a search strategy from Scopus database from 2000 to 2024. The study uses both R and VOSviewer to identify major authors, documents and nations while evaluating conceptual, intellectual and social systems.

Findings – The concept of health insurance has evolved throughout a period of time as a multidisciplinary discipline. The United States dominates in terms of publications and citations, indicating a significant role in driving global medical research. Keyword co-occurrence analysis reveals that “health services accessibility”, “healthcare cost” and “healthcare policy” are the most prominent keywords, confirming the central focus of the literature. Trend analysis indicates that inequality, COVID-19, catastrophic health expenditure and health-care disparities have emerged as rapidly growing research topics, particularly in the post-2020 period.

Practical implications – This research provides important insights on health insurance for policymakers, highlighting the most critical issues and emerging frontiers in this sector. By identifying the major gaps and emerging areas, it will be useful to the academic researchers to develop a future research agenda.

Originality/value – The research makes a substantial addition by consolidating the scattered literature in subject, highlighting the concept and issues which serves as a vital resource for informed decision-making.

Keywords Health insurance, Accessibility, Affordability, Health-care costs, Bibliometric analysis, Network analysis

Paper type Literature review

1. Introduction

1.1 Global health-care scenario

Universal health-care coverage (UHC) is rapidly being acknowledged as a major development goal at global level. It encourages nations to strengthen their health-care systems to ensure that all individuals have access to basic medical services without incurring financial hardship (Kieny *et al.*, 2017; WHO, 2017; WHO, 2023). All countries striving for UHC are facing a concern regarding how to finance the health-care system in a sustainable manner, which ensures the long-term viability focusing on equitable access. The concern is more pronounced in low- or middle-income countries (LMICs), where government health spending is limited and economic constraints can significantly impact health-care infrastructure (Wagstaff, Eozenou, & Smits, 2020). Without the sustainable finance models, such as risk pooling mechanisms, LMICs may continue experiencing catastrophic health expenditures and disparities in health-care provision.



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IIMBG Journal of Sustainable Business
and Innovation
Vol. 4 No. 2, 2026
pp. 145-168
Emerald Publishing Limited
e-ISSN: 2753-4022
p-ISSN: 2976-8500
DOI 10.1108/IJSBI-08-2025-0047

The global health-care landscape reveals profound disparities across different nations. Developed nations have robust access to health care, with the exception of the US spending (18% of GDP) (Henderson, 2023), Australia (10% of GDP), Northern and Western European countries (8–11% of GDP), East and Middle Asia (5–8% of GDP) in health care. While LMICs like Eastern European and South Asian countries are in transition with lower health-care spending, South America and Africa reveal disparities in health care across nations spending 4–9% of GDP on health care (Ortiz & Roser, 2017; Martin, Hartman, Washington, Catlin, & National Health Expenditure Accounts Team, 2019).

The government health spending of LMICs remains low at 3–4% of GDP with an increasing dominance of private health-care providers leading in unaffordable and inaccessible health services (Oxfam, 2008). Equitable and affordable health care is a major concern in these nations where out-of-pocket expenditure accounts for more than 50% of total health spending (WHO, 2022). Policy reports from the WHO and World Bank provide empirical evidence on health-care coverage, service utilization and out-of-pocket expenditure, which can be interpreted through the lens of Andersen's Behavioral Model and Penchansky and Thomas's dimensions of access. According to Andersen's Behavioral Model, this reflects insufficient enabling resources, which limits health-care utilization. Also, Penchansky and Thomas model demonstrates that financial barriers directly affect access to care.

1.2 The burden of out-of-pocket health expenditure

Notably, out-of-pocket spending drives approximately 100 million individuals into poverty each year (Xu *et al.*, 2007). Individuals without having any financial safeguards face the risk of incurring large unforeseen expenditures, which can lead to lower living standards, poverty and indebtedness (Rahman, Gasbarro, & Alam, 2022). These individuals are more likely; not to seek treatment, avail less preventive medical services and suffer from catastrophic financial losses (Escobar, Griffin, & Shaw, 2011).

A minor setback in a person's health might impede working abilities, reducing earning potential (Dror, Radermacher, & Koren, 2007). The importance of health is further demonstrated by the fact that it ranks third among the 17 global agendas established by 193 member nations of the world as Sustainable Development Goals (UNDP) for 2030 (Sachs, 2012).

1.3 Post-COVID-19 health insurance Scenario

In recent years, health-care landscape has witnessed significant transformations, marked by the rising lifestyle disorders and escalating medical expenses (Mantaleon, 2023). The COVID-19 has further exposed the economic fragility of health-care systems globally, highlighting gaps in public health infrastructure and prompting governments worldwide to increase investments in health-care systems (Saleem & Jan, 2023). The crisis revealed inequalities in health-care access and reshaped priorities, emphasizing the need for resilient health-care strategies globally. COVID-19 pandemic has transformed accessibility and affordability from a secondary concern into a central policy, shifting attention toward long-term financial protection. Beyond national experiences, COVID-19 increased public support for government-led health-care systems (Nisa, Yan, Chakraborty, Leander, & Bélanger, 2023). Although awareness of financial risk protection increased post-COVID, rising medical inflation and persistent out-of-pocket payments continue to undermine affordability in many LMICs (Rannan-Eliya *et al.*, 2021). Despite the expansion of UHC, access to health care remains limited due to geographical barriers (Rao *et al.*, 2024). Overall, the post-COVID period has highlighted that expanded coverage alone is insufficient, as structural and systemic barriers continue to constrain timely access to health care.

Health-related uncertainties can arise at any moment, which can significantly impact an individual's well-being and financial stability (Talamonti, Schneider, Gibson, & Forshaw, 2024). While these uncertainties are an inevitable part of human existence, they can be

effectively managed through planning. Unpredictability of illness and its high treatment expenses have rendered financial planning mandatory for people (Arhin-Tenkorang, 2001). Considering the increasing costs of health-care treatment, health insurance has become very important, especially in developing nations, where health-care treatment costs can become a burden on households (McIntyre, Thiede, Dahlgren, & Whitehead, 2006).

1.4 Health insurance accessibility and affordability

Health-care system of any nation is intended to improve the accessibility and affordability of health care and protect the vulnerable populations from impoverishment (Filipski, Zhang, & Chen, 2015). Health insurance accessibility is critical ensuring that individuals can secure health coverage without facing geographic or economic barriers. Compulsory coverage through the public system should reduce socioeconomic disparities as it will eliminate one pathway where the earning may impact on accessibility (McKee, 2002). Several investigations have shown that likelihood of experiencing an unmet health need is higher in case of individuals not having any health coverage (Cunningham & Hadley, 2007) which is possibly due to unaffordability of health-care service (Ayanian, Weissman, Schneider, Ginsburg, & Zaslavsky, 2000; Cunningham & Hadley, 2007). Medical insurance is affordable if the individuals can make reasonable tradeoff to pay for it, without making any other financial sacrifices. Investigations have revealed that individuals who belong to low-income strata have less access to quality medical care services and are at the risk of chronic disease and mortality (Tang, Sun, Zhang, Ye, & Zhang, 2015). Despite the availability of subsidies in the marketplaces, individuals have faced troubles in affording premiums (Tolbert, 2015). Also, people are likely to forego health coverage due to competing financial priorities in situations of financial downturns (Manuel *et al.*, 2019).

1.5 Theoretical framework

1.5.1 Andersen's Behavioral Model. The review is conceptually grounded in framework proposed by Andersen's Behavioral Model (1968). It positions affordability as a key enabling factor and accessibility as a utilization outcome, offering a theoretically grounded lens to examine inequities in health insurance effectiveness. It explains health-care utilization through the interaction of predisposing factors (such as age and gender), enabling factors (including income, insurance coverage and affordability) and need factors (health status). Within this framework, affordability functions as a critical enabling factor, influencing whether individuals can translate insurance coverage into actual health-care access.

1.5.2 Penchansky and Thomas model. The review is conceptually grounded in the access framework proposed by Penchansky and Thomas (1981), which explicitly conceptualizes health-care access through multiple dimensions, including accessibility and affordability. This framework is complemented by the Universal Health Coverage perspective, which emphasizes financial protection and equitable access as central policy objectives.

1.6 Rationale of the study

Existing bibliometric reviews primarily focus on specific aspects such as health insurance and big data (Galetsi, Katsaliaki, & Kumar, 2020; Mall, Panigrahi, & Verma, 2023; Bisht, Taneja, & Johri, 2024), block chain and health care (Pandey & Rarhi, 2021), artificial intelligence and health insurance (Tran *et al.*, 2019; Tiwari *et al.*, 2023), sustainable medical insurance (Nobanee *et al.*, 2021), public health insurance for the elderly (Agrawal & Kumar, 2025), health insurance for poor (Bansal, 2024), health equity (Sarikhani, Kalavani, & Najibi, 2025) catastrophic health expenditures (Mougenot & Herrera Añazco, 2022; Mete & Şimşir, 2025), health inequalities (Wu, Yang, Sun, & He, 2024) and out-of-pocket expenditures (Proaño *et al.*, 2024). These studies tend to be context-specific and do not provide a comprehensive mapping of health insurance affordability and accessibility. These studies highlighted that affordability

is often treated indirectly through indicators such as out-of-pocket expenditure or catastrophic health spending, rather than being examined as an independent construct. Similarly, accessibility is predominantly discussed in terms of health disparities or inequity but remains underexplored in the global literature.

Several prior bibliometric studies have touched on components related to affordability and accessibility but do not fully integrate this as a central analytical theme. For instance, [Mirach, Atsbeha and Kidane \(2025\)](#) conducted a global bibliometric analysis of willingness to pay for community-based health insurance, though it focused narrowly on a specific financial mechanism rather than broader affordability dynamics. [Mete and Şimşir \(2025\)](#) conducted a bibliometric analysis of studies on catastrophic health expenditures, but it does not explicitly center on affordability as core dimension of health insurance systems. Likewise, [Ghanbari et al. \(2021\)](#) conduct a bibliometric analysis of universal health coverage literature up to 2019; their temporal coverage does not capture more recent developments, particularly post-2019 shifts associated with COVID-19 and evolving health financing priorities. [Damayanti and Santosa \(2024\)](#) do not explicitly integrate bibliometric findings with health economics concepts such as affordability and equity nor does it translate these patterns into policy-relevant insights. Although prior bibliometric studies provide valuable insights into health-care research trends, they differ from the present study in scope, conceptual focus and analytical intent.

Despite extensive research on health insurance ([Wagstaff & Culyer, 2012](#); [Pandey, Clarke, Dandona, & Ploubidis, 2018](#); [Nayak et al., 2023](#)), several key gaps remain regarding accessibility and affordability, creating a strong rationale for this study. This study addresses these gaps by integrating affordability and accessibility as explicit analytical dimensions, analyzing emerging temporal thematic trends which allow us to highlight how key topics evolve over time. There is limited attention to demographic disparities which directly affect accessibility and affordability, highlighting inequalities in research contribution and collaboration, which adds a policy-relevant perspective. Also, post-pandemic changes in health-care utilization and financial protection have introduced new challenges, yet these shifts have not been systematically captured in bibliometric mappings. Also, we applied bibliographic coupling, which is rarely used in prior studies, to identify closely related research clusters and measure intellectual connectivity.

1.7 Bibliometric analysis

Bibliometric analyses utilize both statistical and mathematical techniques to examine trends in previously published literature ([Singh & Dhir, 2019](#)). Over a period of time, the area of health insurance has evolved into a multidisciplinary field. So, the research employs bibliometric analysis tools to comprehend the fragmented literature by determining the key patterns in intellectual, conceptual and social structure ([Ingale & Paluri, 2022](#)). The bibliometric analysis aims to address the following research questions.

- RQ1. Which publications, countries, and authors are most influential in the domain of health insurance research?
- RQ2. What are the intellectual, conceptual, and social structures of the health insurance research community?
- RQ3. How has the concept of health insurance evolved over time and which topics currently attract the greatest scholarly attention?

On the basis of above research questions, the objectives of the research are as follows:

- O1: To assess the relative influence of key publications, authors and countries contributing to health insurance research

- O2: To analyze the underlying intellectual, conceptual foundations and collaborative networks within the health insurance research field
- O3: To trace the temporal evolution of health insurance research

2. Research methodology

The analysis of the research begins with identification of the repository or a database followed by the search strategy for the collection of the data (Figure 1).

2.1 Selection of database

Researcher used Scopus database for data collection and extraction. Scopus is a well-known and reputed database that includes major research papers from prestigious journals and research academics (Waltman & van Eck, 2013). It concentrates on social sciences and provides multi-disciplinary coverage compared to other databases. Scopus also provides a broader coverage of publications than WoS, with nearly 25,000 journals against 21,419 listed on WoS (Srivastava, 2021). Scopus database is more inclusive and comprehensive (Bartol, Budimir, Dekleva-Smrekar, Pusnik, & Juznic, 2014).

2.2 Preparation of data

The search string query used was (TITLE-ABS-KEY(“Health Insurance” OR “Government Health Insurance” OR “Public Health Insurance” OR “Private Health Insurance” OR “Voluntary Health Insurance” OR “Medical insurance” OR “Medicare” OR “Medicaid” OR “Healthcare policy” AND “accessibility” OR “access to healthcare” OR “insurance accessibility” OR “health services accessibility” OR “Health coverage” OR “healthcare

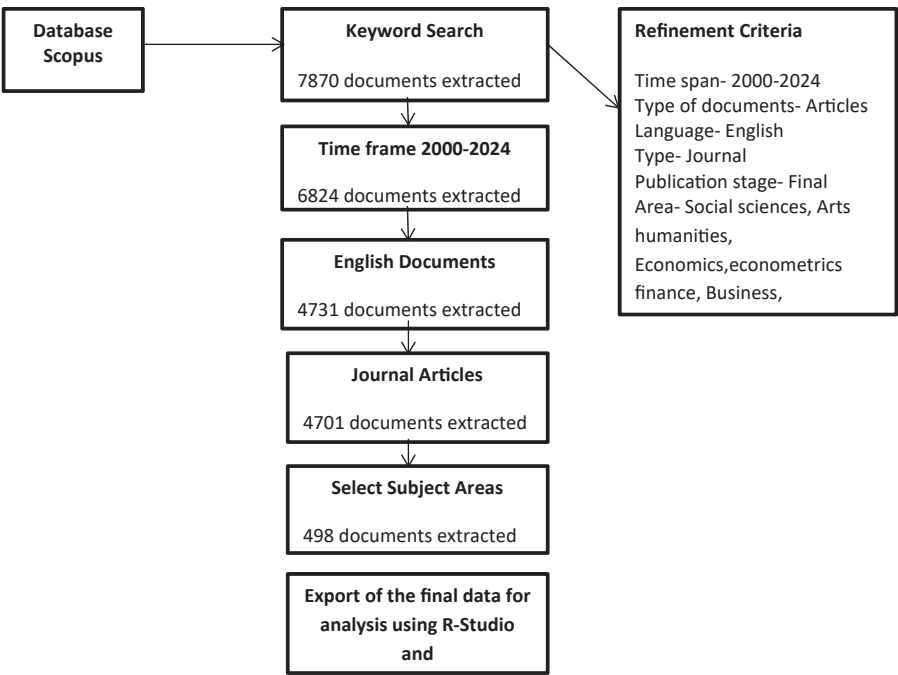


Figure 1. PRISMA framework. Source(s): Authors’ compilation using SCOPUS software

disparities” AND “Affordability” OR “Cost” OR “Healthcare costs”) in the title of the paper, abstract or keyword list which resulted in 7,870 documents.

With the fundamental objective of identifying trends and patterns in the domain of health insurance in terms of accessibility and affordability, researchers restricted the search from 2000 to 2024 which resulted in 6,824 documents. This timeframe allows the study to examine structural shifts in research focus, and the transformative influence of COVID-19. A total of 4,731 documents remained in the output after eliminating all non-English documents. Only English language articles were included because English is the most widely used language in international publications. A total of 4,701 documents were received after restricting the search query to journal articles, eliminating documents including book chapters, proceedings for conferences, theses and dissertations and reviews. Only peer-reviewed research articles were included to ensure consistency, methodological rigor, and the reliability of scholarly evidence. The search was confined to documents in the final stages of publication in terms of the inclusion criteria, yielding 4,679 items. Researcher restricted the subject area to Social Sciences, Arts and Humanities, Economics, Econometric and Finance, Business, Management and Accounting, resulting in 498 publications in the final output. The inclusion criteria are given in [Table 1](#). Lastly, citation information, bibliographic information, keywords and abstracts of the documents were retrieved as a comma-separated file. Then, all the papers have been checked for the duplicacy, and no paper has found to be duplicated in the Excel sheet, as shown in [Figure 1](#). To ensure relevance, all retrieved papers were screened by checking the abstract review to confirm alignment with the study’s research scope and objectives. All the papers included in the analysis are relevant to the study, as they were systematically selected based on predefined keywords aligned with the research objectives.

2.3 Selection of bibliometric tool

The research uses both R and the VOSviewer for bibliometric analysis. VOSviewer ([Van Eck & Waltman, 2010](#)) was used to construct co-occurrence networks of keywords, authors, and countries, enabling visualization of research clusters. Its strength lies in producing high-quality network maps that reveal structural relationships among research themes. R, particularly packages such as bibliometrix and biblioshiny ([Aria & Cuccurullo, 2017](#)), was used to perform quantitative bibliometric computations, including descriptive statistics, citation analysis, trend analysis. By using both tools, the study leverages the statistical and computational rigor of R alongside the visual interpretability of VOSviewer, ensuring it cross-validates quantitative findings with visual network structures.

3. Analysis and discussion

Data analysis was done using both descriptive and data visualization. A descriptive analysis attempts to examine data based on features and attributes of a data set such as annual scientific

Table 1. Inclusion criteria

Basis	Inclusive criteria
Year	2000–2024
Language	English
Document type	Articles
Publication stage	Final
Subject area	Social sciences, arts and humanities, economics, econometric and finance, business, management and accounting
Source(s): Authors’ compilation from Scopus database	

3.1 Descriptive analysis

This part of descriptive analysis discusses various dimensions undertaken for analysis.

3.1.1 Main information. Based on Table 2, the bibliometric analysis encompasses 498 documents across 175 journals from 2000 to 2024. Annual growth rate of 10.71% with an average of 16.69 citations per document indicates moderate engagement within the scholarly community. The reference count stands at 18,315, reflecting a robust background of cited research across these documents. Collaboration in this field appears substantial, with 1,597 authors contributing to these works. Additionally, international co-authorship is relatively high at 22.29%, suggesting a considerable level of cross-border collaboration in this field.

3.1.2 Annual scientific production. Figure 2 illustrates the growth in published research articles over time. Starting with relatively few publications around the year 2000, the number of articles fluctuates but shows a generally upward trend. The relatively low number of publications around the year 2000 reflects the nascent stage of health insurance research. The recent rise in research on health insurance affordability and accessibility is primarily driven by the post-COVID-19 exposure of gaps between insurance coverage and real health-care access. The global commitment to Universal Health Coverage under SDG 3.8 has further shifted research priorities toward affordability and access as core indicators of health system performance. The rise in research is driven by heightened awareness of health-care needs, policy reforms and technological advancements, health-care financing and rising medical costs. Till now, the area has not entered into maturity phase because the number of publications on this topic is still in increasing trend. The growth of any research area goes through four phases – precursor, exponential growth, consolidation of knowledge and decrease in total articles (Low & Siegel, 2020).

3.1.3 Average citations per year. Figure 3 depicts the average number of citations per year over time. In the early 2000s, there is a general rise in citations, suggesting an initial growing

Table 2. Information about data set

Description	Results
Timespan	2000:2024
Sources (journals, books, etc.)	175
Documents	498
Annual growth rate (%)	10.71
Document average age	8.37
Average citations per doc	16.69
References	18,315
Document contents	
Keywords plus (ID)	2,346
Author's keywords (DE)	1,191
Authors	
Authors	1,597
Authors of single-authored docs	94
Authors collaboration	
Single-authored docs	97
Co-authors per doc	3.49
International co-authorships (%)	22.29
Source(s): Authors' compilation using Biblioshiny	

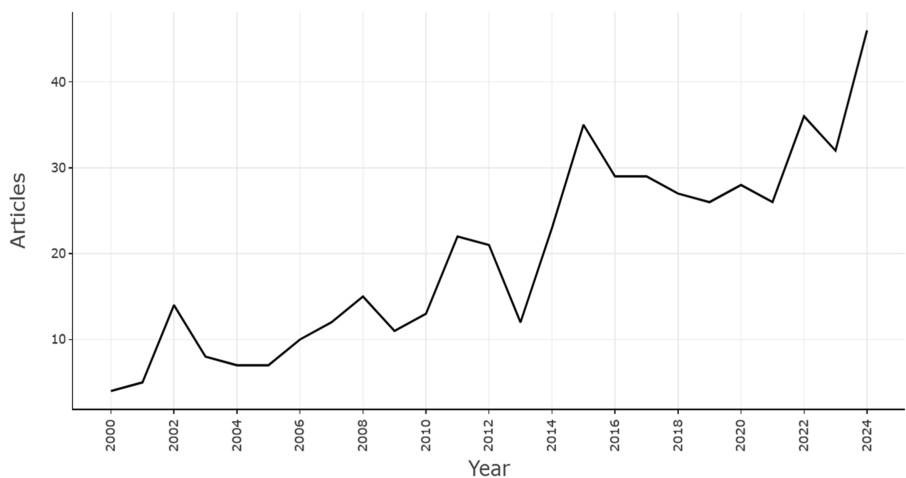


Figure 2. Annual scientific production. Source(s): Authors’ compilation using Biblioshiny

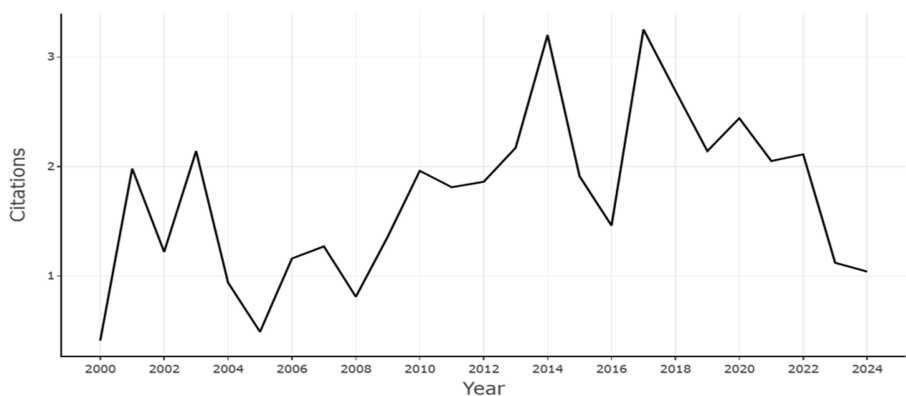


Figure 3. Average citations per year. Source(s): Authors’ compilation using Biblioshiny

interest in the topic. In the year 2017, there was a peak in average citations. After 2018, there is a notable downward trend. Factors contributing to these fluctuations could be emerging research areas and global societal trends.

3.1.4 Three field plots. The three-field plot illustrates the relationships among authors, sources and keywords in the field of health-care insurance employing the Sankey plots (Riehmann, Hanfler, & Froehlich, 2005). It’s like a vibrant network, where every node – whether an author, keyword, or journal – is linked to others via a web of influence. Authors are on the left portion of Sankey plot, each an acknowledged expert in their area, characterized by keywords in the middle portion of the plot, which in turn connect to a varied range of prominent journals which are on the right side. Figure 4 highlighted major terms such as health insurance, universal health care, equity and health policy, together with influential authors and journals of the domain.

3.1.5 Relevant sources, sources impact and production over time. Table 3 shows the top ten pertinent journals in the discipline of health insurance based on the h-index. The metric assesses the relative quality of journal considering its citation impact and productivity.

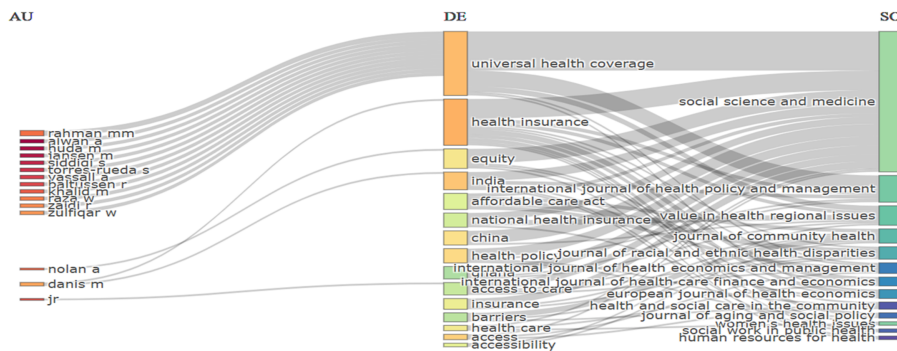


Figure 4. Three field Sankey plots. Source(s): Authors' compilation using Biblioshiny

Table 3. Relevant sources based on impact, citations and production

Element	h-Index	Total documents	Total citations
<i>Social Science and Medicine</i>	27	90	2,523
<i>Women's Health Issues</i>	13	24	633
<i>Applied Health Economics and Health Policy</i>	11	24	303
<i>Journal of Community Health</i>	9	12	283
<i>European Journal of Health Economics</i>	7	9	197
<i>Value in Health Regional Issues</i>	7	19	160
<i>International Journal of Health Care Finance and Economics</i>	6	8	186
<i>International Journal of Health Policy and Management</i>	6	22	137
<i>Journal of Racial and Ethnic Health Disparities</i>	6	12	257

Source(s): Authors' compilation from using Biblioshiny

The h-index is defined as: "A scientist has index h if h of his or her Np papers have at least h citations each and the other (Np - h) papers have fewer than $\leq h$ citations each" (Hirsch, 2005; Bornmann & Daniel, 2007). The journal *Social Science and Medicine*, which began publication in 2002, emerges as the most prominent journal with maximum number of publications (90 documents) throughout all metrics, with the h-index of 27 and 2,523 citations, and is steadily growing which indicates a broader emphasis on the social and behavioral aspects of health. *Social Science and Medicine* publishes rigorous research that bridges public health, health policy, economics and social determinants, making it a preferred outlet for studies on health insurance, access, equity and financial protection, followed by "Women's Health Issues" with an h-index of 13, 633 citations, 24 documents highlighting the importance of women health. It is highly cited because it emphasizes gender-specific health concerns, disparities and policy implications. The remaining journals show varying levels of impact, with h-indices ranging from 5 to 10.

3.1.6 Most relevant authors. Table 4 highlights the most relevant authors of the domain based on h-index, the total number of citations and total publications. Analysis of h-index of authors shows that Nolan Anne is the most impactful authors of the area. Anne Nolan stands out as the most cited author with 69 citations who is specialist in health economics, public health insurance and health access, followed by Danis Marion (employer side of health insurance), who has 59 citations. The table continues to list other influential authors like Alwan Ala, Jansen Maarten and Huda Maryam (22 citations each).

3.1.7 Most relevant affiliations. Table 5 displays the research publications of various academic and health-care institutions, highlighting their respective contributions to the

Table 4. Relevant authors based on impact, citations and production

Author	h- Index	Total citations	Total publications
Nolan A	4	69	4
Alwan A	3	22	5
Baltussen R	3	16	4
Danis M	3	59	3
Huda M	3	22	5
Jansen M	3	22	5
Khalid M	3	17	4
Kitson N	3	14	3
Layte R	3	48	3

Source(s): Authors' compilation using Biblioshiny

domain. The University of California with 27 published publications leads in health insurance research due to its robust multidisciplinary research infrastructure and extensive funding networks, which allow scholars to conduct high-impact, policy-relevant studies. Similarly, the London School of Hygiene and Tropical Medicine maintain a leading position each with 26 articles because of its global health focus and long-standing collaborations with LMICs.

3.1.8 Most relevant and cited countries. Table 6 shows that the most cited nations in the domain of study is United States, with 3,368 citations, followed by the United Kingdom and the Netherlands, with 373 and 369, respectively. The United States' dominating position indicates that studies conducted in the United States establish benchmarks and present new concepts to which other researchers commonly refer. The dominance of the United States in health insurance research can be analytically attributed to its uniquely complex and market-driven health-care system, where high health-care costs fragmented insurance coverage, and persistent inequities create continuous policy and academic demand for evidence-based evaluation. Interestingly, several highly developed nations, such as Germany and Australia, have very low citation counts given their strong research infrastructure. The table also demonstrates the total production of research articles of various countries. The United States once again substantially leads with 728 research papers, being followed by a second tier of nations which includes China (95), the United Kingdom (87) and India (66).

3.1.9 Most cited global documents. Figure 5 depicts the top globally most-cited research articles in the domain of health insurance. The length of each bar indicates the total number of citations, with the most cited document by the Cruz in 2014 with a total citation of 237

Table 5. Most relevant affiliations

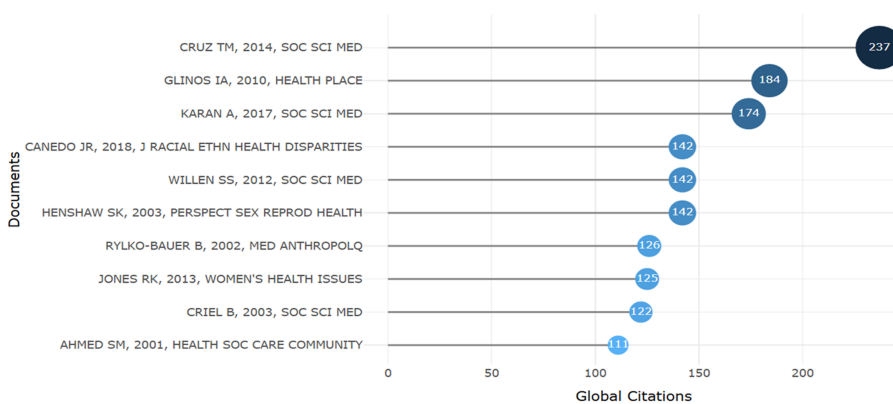
Affiliation	Articles
University of California	27
London School of Hygiene and Tropical Medicine	26
National Centre for Cancer Care and Research	26
Ministry of National Health Services	16
University of Ghana	14
National Center for Chronic Disease Prevention and Health Promotion	12
University of Southern California	12
Aga Khan University	11
University of Washington	11
University of York	11

Source(s): Authors' compilation using Biblioshiny

Table 6. Relevant countries based on citations and production

Country	Total citations	Country	Total production
The United States	3,368	USA	728
The United Kingdom	377	China	95
The Netherlands	369	UK	87
China	269	India	66
India	200	Netherland	56
Colombia	168	Ghana	39
France	156	Australia	35
Belgium	122	Canada	35
Australia	118	Japan	31
Germany	115	Pakistan	30

Source(s): Authors' compilation using Biblioshiny

**Figure 5.** Most cited global documents. Source(s): Authors' compilation using Biblioshiny

(assessing access to care for transgender individuals) published in *Social Science and Medicine*. Glino and Karan are having 184 and 174 citations, respectively, in their work. By emphasizing the most cited publications, the figure provides insight into revolutionary research and significant developments that have shaped the field of study.

3.1.10 Word map. A word map depicts the most frequently occurring keywords in a data set; with the size of each term is related to its significance and importance. Key terms such as health insurance, health services accessibility, health-care cost and health-care policy are highlighted in large fonts, emphasizing that they are central themes in the previous studies. The frequent occurrence of demographic such as female, male, middle aged and adult, highlighting that insurance impact are increasingly assessed across gender and age groups. Geographic identifiers such as the United States indicate that substantial studies are centered on United States health-care system and reflect the influence of the U.S. health-care system's complexity and ongoing reforms in shaping global health care (Figure 6). The terms Human and Health Insurance are prominent, appearing 401 and 389 times, respectively, accounting for approximately 6% of the dataset. Health service accessibility and health-care costs appear 234 and 213 times, respectively, highlighting a core driving contemporary research – balancing financial sustainability with equitable access to care.

3.1.11 Trending topics. Figure 7 depicts the evolution of significant key words in health insurance. Key themes such as health insurance, health care, access to care and affordability



Figure 6. Word map. Source(s): Authors’ compilation using Biblioshiny

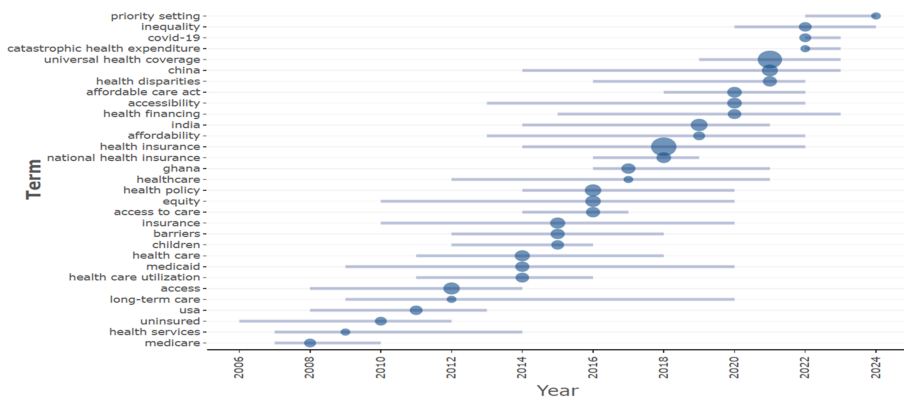


Figure 7. Trending topics. Source(s): Authors’ compilation using Biblioshiny

maintain a consistent presence, highlighting its long-term relevance throughout the years. The temporal analysis shows a progression from early focus on uninsured populations, Medicare and basic access reflecting early concerns about coverage gaps and basic access (2006–2010) to health-care utilization and insurance barriers (2011–2014), followed by greater emphasis on equity, health policy and national health insurance in LMICs (2015–2017). Research then shifted toward affordability and accessibility, universal health coverage and catastrophic health expenditure (2020–2021), reflecting concerns about financial risk protection during health shock. The shift observed after 2020 – with growing emphasis on COVID-19, inequality, catastrophic health expenditure, equity, health-care disparities and UHC – is analytically linked to the pandemic’s role as a systemic shock that exposed structural weaknesses in insurance coverage and financial protection worldwide. COVID-19 amplified preexisting inequities, disproportionately affecting vulnerable populations and highlighting gaps in affordability and access even in high-income countries. Consequently, research priorities realigned toward equity-oriented and resilience-focused themes, moving beyond traditional coverage metrics to broader social and financial dimensions of health insurance.

3.2 Network analysis

Data visualization employs network analysis to quantify the number of emerging clusters, occurrences and associations between various units of analysis, total link strengths (TLSs) and citation counts (Low & Siegel, 2020).

3.2.1 Bibliometric coupling with documents. Bibliographic coupling can be defined as the relationship between two referring documents that refer to the same work. Kessler invented the term, indicating that the notion would be valuable for discovering similar study. The bibliometric coupling has been conducted on documents having a minimum citation criterion of 15. Figure 8 depicts a bibliometric coupling network by document, where documents are grouped into 13 clusters based on a shared theme. Clusters were generated using the VOS clustering algorithm, which maximizes intra-cluster link strength and minimizes inter-cluster connections. Interpretive validity was established through qualitative analysis of dominant keywords and associated publications to ensure thematic consistency. Different colors represent distinct clusters identified by the clustering algorithm, with each color indicating a group of items that are more strongly related to each other. Cluster 1 denoted by red color has 13 documents, with Gil-González *et al.* (2015) being the most significant contributor, followed by Chatterjee, Kotelchuck, and Sambamoorthi (2008) and Xu, Patel, Vahratian, and Ransom (2006). These researchers have conducted substantial research on health-care accessibility, particularly how the barriers to access affect patient care and health outcomes. Disparities in preventive and general care utilization remain, especially across racial and socioeconomic groups (Anderson *et al.*, 2022). Cluster 2, highlighted in dark green color, includes 14 publications including Fang *et al.* (2022), Yip *et al.* (2019), Ensor, Chhun, Kimsun, McPake, and Edoka (2017), whose research highlights health insurance as an instrumental pathway toward achieving universal health coverage and ensuring essential health care to all. Cluster 3, depicted in dark blue, has 14 documents, with Rahman *et al.* (2017) serving as the most prominent contributor, followed by Ahlin, Nichter, and Pillai (2016), Sparrow, Suryahadi, and Widianti (2013) and Amaya Lara and Ruiz Gómez (2011), highlighting how financial constraints often impede access to health insurance, leaving significant populations without fundamental coverage. High health-care costs continue to be a major barrier to access, pushing households into financial distress, especially where insurance depth is inadequate (Okamoto *et al.*, 2023). Cluster 4, shown in gold, includes 10 documents from Barcelos (2019), Sanz (2017) and Cruz (2014). Their research demonstrates how high costs and premiums create substantial obstacles to health insurance access. Cluster 5, in purple color, has 10 documents, with contributions like Kawaii-Bogue *et al.* (2017), Fenny, Kusi, Arhinful, and Asante (2016) and Parmar *et al.* (2014). These studies emphasize the vital role of national and community-based health insurance programs in safeguarding low-income people from high medical costs while promoting health-care outcomes in marginalized communities. Cluster 6, highlighted in light blue, has 10 publications by renowned authors such as Willen (2012), Dalstrom (2012) and Glinos, Baeten, Helble, and Maarse (2010), focusing on cross-border patient mobility and

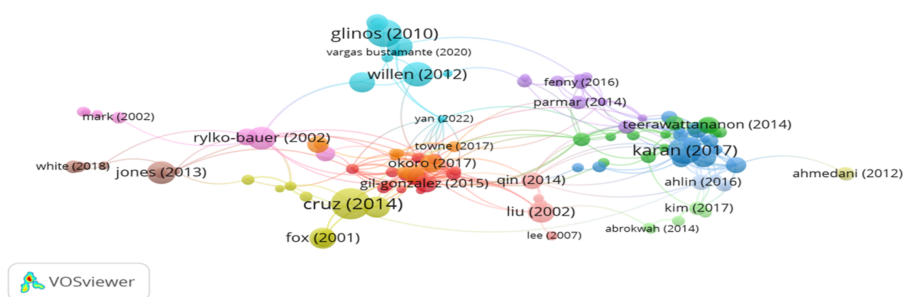


Figure 8. Coupling by documents. Source(s): Authors' compilation using VOSviewer

global health care needs. Cluster 7 shown in orange color contains nine documents from authors such as [Okoro and Whitson \(2017\)](#), [Novak, Vrdoljak, Jelaska, and Borovac \(2017\)](#) and [Glied \(2008\)](#). Their research focuses on women’s specific medical requirements and the fundamental role of health insurance in providing necessary support. Sex-based barriers can limit utilization despite coverage, with women facing out-of-pocket barriers ([Shartzer, Long, & Benatar, 2015](#)). Cluster 8, depicted in brown, has seven documents, with substantial contributions from [Jones and Jerman \(2014\)](#) and [You et al. \(2012\)](#), on the financial burden associated with pregnancy and abortion-related health-care expenses. Cluster 9, depicted in pink, contains seven documents from prominent authors, including [Liu et al. \(2012\)](#), [Mark \(2002\)](#) and [Bauer, Collins, Doyle, Fuld, and Fuentes-Afflick \(2002\)](#). Cluster 10, shown in peach, with contributions from [Lee, Kiyu, Milman, and Jimenez \(2007\)](#) and [Wong, Yoo, and Stewart \(2007\)](#), demonstrate health insurance not merely as financial protection tool but also as a productive factor in enhancing individual well-being. Cluster 11, highlighted in light green, emphasizes how social health insurance promotes equity across low income strata. Cluster 12, represented in gray, focuses on India’s rapidly evolving health insurance landscape with persistent challenges in accessibility and affordability. The final cluster, depicted in light yellow, concentrates on children’s autism and associated health challenges.

Conceptual structure – Conceptual structure indicates the interaction between topics, themes and trends using a co-occurrence network or co-word analysis.

3.2.2 Co-occurrence network. A co-occurrence network shows how frequently and closely related elements (such as words, concepts or keywords) appear within a dataset. “Author Keywords” are words extracted by computer algorithm that is based on common and related words found in titles and abstracts ([Figure 9](#)). The co-occurrence network has been conducted on documents having a minimum citation criterion of 15. The visualization exhibited six distinct groups, each differentiated by color. In the visualization, spatial proximity between the nodes reflects their relatedness and size of node indicated the frequency. The red cluster, including 11 keywords, is dominated by Universal Health Coverage as its main theme which includes related concepts such as equity, health-care reforms, health financing and catastrophic health expenditures. UHC has the potential to reduce catastrophic out-of-pocket spending and unmet need for care among aging populations ([Okamoto et al., 2023](#)). Health insurance expansion improves access and financial protection in LMICs ([Erlangga, Suhrcke, Ali, & Bloor, 2019](#)). Future policies should move beyond policy evaluations to micro-level analyses of how universal health coverage translates into affordable and accessible insurance coverage for households, particularly among vulnerable and informal populations. The green cluster represents a broader policy perspective, including health,

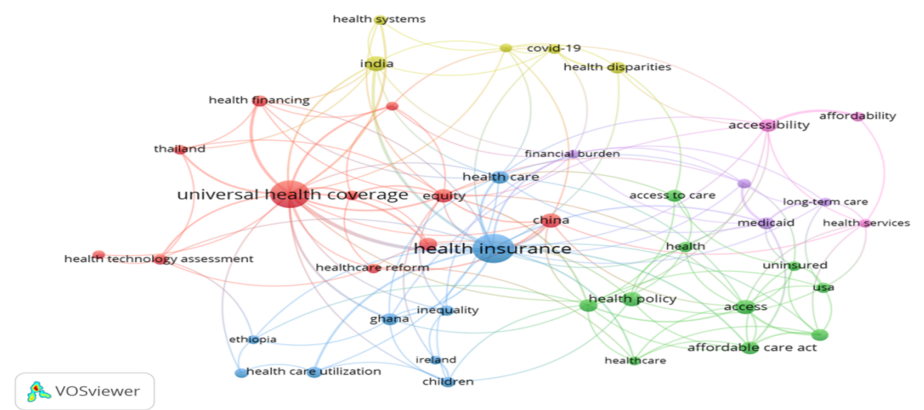


Figure 9. Co-occurrence network. Source(s): Authors’ compilation using VOSviewer

access to care, health policy, uninsured, barriers, USA and affordable care act, which highlights a strong geographical concentration of research. Policy reforms significantly reduce uninsured rates and improve access (Sommers, Maylone, Blendon, Orav, & Epstein, 2017). Future policies should examine how affordability and access challenges differ across health systems. The blue cluster contains nine keywords, with health insurance appearing as the largest node in the center associated with terms including health care, health-care utilization and inequality. Future policies should integrate financial and access-related factors to better understand how insurance design influences health-care utilization and inequality. The yellow cluster highlights the association between disparities in health and COVID-19 in the Indian context. Future policies should focus on post-COVID influence on insurance affordability, accessibility, and financial vulnerability, particularly for marginalized populations. The purple cluster addresses the association between financial strain and long-term care, emphasizing the financial implications of health-care needs. With aging populations and rising chronic disease burdens, future policies should focus long-term care insurance affordability, sustainability and access. The pink cluster focuses on the critical intersection between accessibility and affordability of health insurance. Future research should deepen this line of inquiry by developing multidimensional measures of affordability and accessibility.

Also, the *accessibility* dimension identified in our clusters (e.g. service availability, equity, demographic disparities) aligns with Penchansky and Thomas's multidimensional model of access, particularly the dimensions of availability and accessibility. Similarly, patterns related to *affordability*, catastrophic expenditure and financial protection correspond to the “enabling resources” components of Andersen's Behavioral Model.

3.2.3 Thematic map. A thematic map is a graphic representation that emphasizes the associations and connections between various themes, concepts and topics in the review of literature. According to Cobo, López-Herrera, Herrera-Viedma, and Herrera (2011), relevance of the theme is measured by centrality, whereas density is related to the development of the theme. Thematic map exhibits four classifications of themes in each quadrant (Corte, Del Gaudio, Sepe, & Sciarelli, 2019). The bubbles in the quadrants are positioned according to the Callon centrality and density parameters shown in Figure 10 (Callon, Courtial, Turner, & Bauin, 1983). The upper-left quadrant indicates adults and middle-aged people, which are

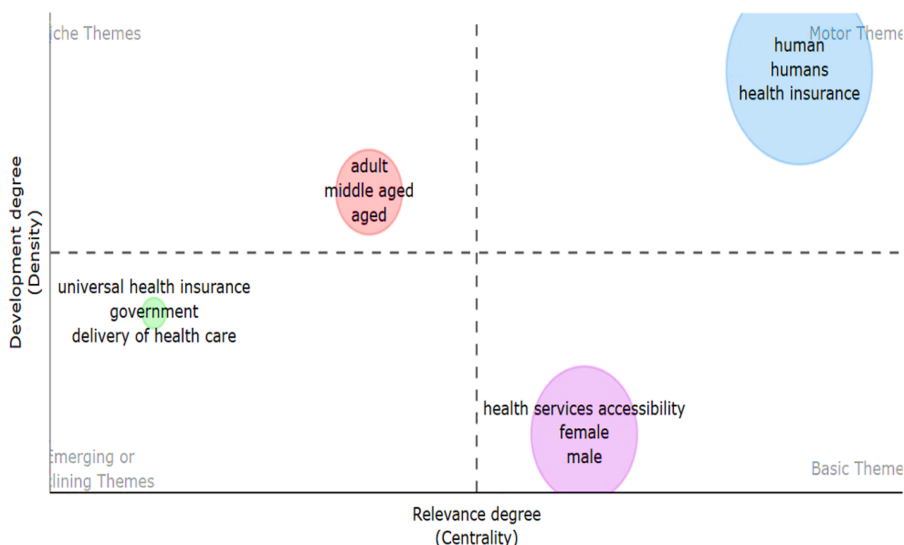


Figure 10. Thematic map. Source(s): Authors' compilation using Biblioshiny

isolated and niche themes as they are low in density but high on centrality. Future research should prioritize adults and middle-aged populations, who are often overlooked and address chronic disease management, preventive care and long-term financial protection for the working-age population. The lower-left quadrant depicts universal health insurance and health-care delivery as emerging or declining topics, with low density and centrality. Future research should prioritize system-level reforms, such as improving provider networks and strengthening public–private partnerships. Themes in the upper-right quadrant reflect well-matured and important themes of the research area shown in the figure – humans and health insurance are the most essential themes, with high centrality and density and are known as motor themes (Kamath, Shenoy, & Subrahmanya, 2022). The lower-right quadrant shows health accessibility, male and female as the primary or basic theme which is significant but not developed area. Future research should address gender-sensitive and equity-oriented access barriers, including differential enrollment patterns, care-seeking behavior and financial constraints faced by men and women.

From a policy standpoint, these findings indicate the need to realign health insurance reforms with affordability and accessibility as central objectives rather than secondary outcomes. Overall, the bibliometric evidence suggests that future research and policy interventions must converge toward equity-oriented, context-sensitive, and consumer-focused health insurance frameworks to ensure meaningful progress toward universal health coverage.

Intellectual structure – Intellectual framework examines how various authors influence the scientific community by examining collaboration between authors and nations (Cobo *et al.*, 2011; Tella & Olabooye, 2014; Mendes, Oliveira, Gomide, & Nantes, 2017; Baker, Kumar, & Pattnaik, 2021).

3.2.4 Co-citation analysis. The co-citation strength measures the degree of association among documents as seen by the citing writers (Small, 1978). Figure 11 represents a co-citation analysis conducted on a dataset, resulting in six distinct clusters. The green cluster, which includes 15 authors, dominated by Wagstaff, who has 166 citations, as well as other renowned researchers such as McIntyre (38 citations), Mills (35 citations) and Hsu. The blue cluster, which includes 13 contributors, features Criel as most renowned academician who has 51 citations, followed by Allegri (41 citations), Hanson (38 citations) and Riddle. The yellow cluster, comprising nine authors, is led by Yip with 56 citations and includes Wang (26 citations), Zhang (23 citations) and Liu. Gruber is the leading contributor in the red cluster with 65 citations, followed by Sommers (42), Baicker (35) and so on. Xu contributions to the purple cluster stand out, with 48 citations, followed by Karan and Mahal, who each have 30 citations.

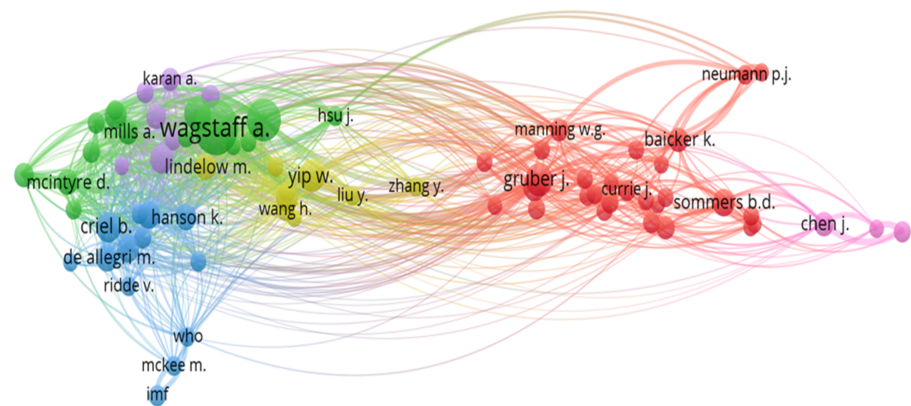


Figure 11. Co-citation analysis. Source(s): Authors' compilation using VOSviewer

The blue cluster features Chen as the primary contributor who has 34 citations, followed by Vargas and Bustamante.

Social structure – Social structure analysis is employed to determine interrelationships within the research area (Low & Siegel, 2020).

3.2.5 Country collaboration network. A country collaboration network serves as visual representation of research partnerships across nations illustrating their collaborative arrangement in academic and scientific research. Figure 12 represents a collaboration network conducted on a dataset, resulting in six distinct clusters based on minimum criteria of 5. The United States exhibits the highest TLS (66), highlighting its central and dominant position in the global knowledge network, with strong collaborations primarily with Australia, Canada, China and Colombia. The United Kingdom with TLS of 50 plays a key coordinating role with South Africa, Nigeria and Ghana. In contrast, the Netherlands (30) and Australia (23) show moderate integration. The country collaboration analysis reveals marked inequalities in global research partnerships, reflected through both TLS and the North–South divide. Overall, these disparities in TLS demonstrate collaboration inequality, where a few Global North countries act as hubs controlling knowledge flows, while Global South countries remain dependent collaborators with limited connectivity among themselves.

4. Conclusions

Despite the importance of health insurance in providing financial protection during medical emergencies, the two factors remain significant barriers to equitable health care, particularly in LMICs. There remains a lack of comprehensive mapping including accessibility and affordability in a global context. The data set was obtained from the Scopus database from 2000 to 2024. The field has shown substantial growth with an annual publication rate of 10.71%. The United States dominates both in publications (728) and citations (3,368), suggesting its influential role in shaping global health insurance research (Wondimagegn *et al.*, 2023). The most influential position has been secured by Nolan whose work has been cited 69 times with h-index of 4. With a significant shift after 2020, emerging concepts including COVID-19, health-care disparities and universal health coverage, reflects the pandemic's

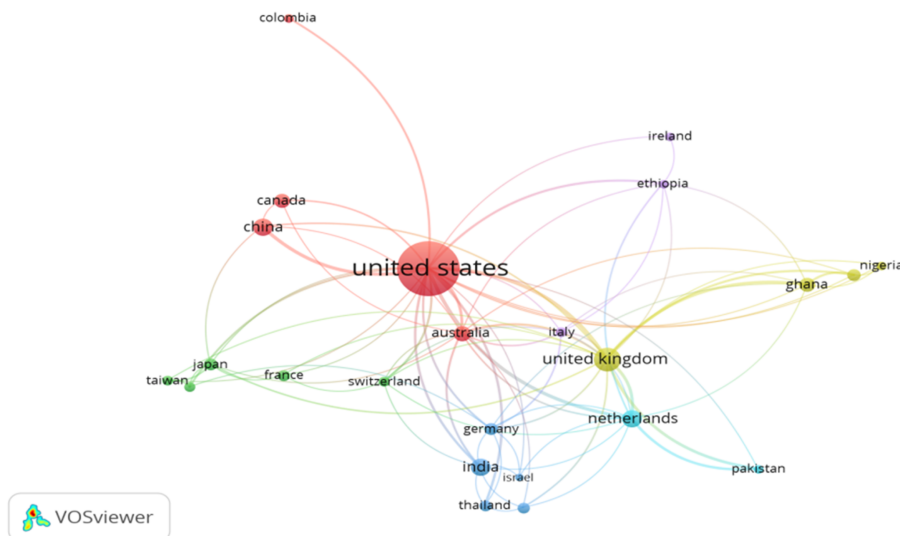


Figure 12. Country collaboration network. Source(s): Authors' compilation using VOSviewer

impact on health insurance studies (Rannan-Eliya *et al.*, 2021). The study highlights that affordability and accessibility consistently emerge as the most critical dimensions influencing health insurance uptake and financial protection. Also, study advances bibliometric research as it moves beyond descriptive mapping by theoretically anchoring in Andersen's Behavioral Model and Penchansky and Thomas's access framework, thereby explaining how scholarly output reflects underlying structures of health care. In addition, the analytical interpretation of bibliometric clusters enables the identification of concrete policy interventions, translating abstract research patterns into actionable guidance for improving equitable access and financial protection.

5. Limitations of the study

The study is limited by database coverage, potential bias in keyword selection and inclusion of English articles. First, database bias may arise because the study relies on Scopus database. Second, the exclusion of non-English literature may omit valuable studies published in local languages, which could provide additional insights of non-English-speaking regions. Despite these limitations, the study provides robust and reliable insights into global research trends, identifies underexplored thematic areas and highlights equity-related gaps in health insurance research.

6. Future research directions

The research reveals several significant gaps and future research directions in the domain of health insurance. Future research could benefit from expanding beyond single database like WoS; Google Scholar could also be utilized for extraction of data. The keyword search strategy could be modified to include supplementary terms so that more publications pertinent to the domain are incorporated in the study. The limited research in developing nations highlights a notable contextual gap, indicating the need for more studies in developing economies and comparative analyses between different health-care models. The analysis reveals a shift toward emerging concepts such as universal health coverage, consequences of COVID-19 and health-care inequalities, suggesting that future research should examine these areas more thoroughly.

7. Implications

The findings from the bibliometric analysis reveal important patterns with direct implications for policy and future research. The bibliometric findings reveal that persistent regional inequalities, disparities in insurance coverage, demographic variations in health-care utilization and rising health-care costs can be coherently interpreted through Andersen's Behavioral Model of Health Services Use and Penchansky and Thomas's dimensions of access. Policies including the expansion of insurance networks, improved geographic coverage and age- and gender-targeted awareness programs can address demographic and regional utilization gaps, supporting progress toward SDG. Policies such as subsidized insurance schemes for vulnerable populations and cost-regulation measures to reduce premium burdens directly strengthen financial risk protection and align with SDG. By grounding bibliometric evidence in established access theories, this study provides actionable guidance for policymakers seeking to enhance equitable access to care and financial protection under UHC.

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