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# SDG 3 and Global Health Research: A Bibliometric Perspective on Trends, Collaborations, and Future Directions (2015–2024)

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***Abstract***

***Purpose****– This report examines the research landscape of Sustainable Development Goal 3 (SDG 3) — "Good Health and Well-being" — concentrating on developing nations from 2015 to 2024. It seeks to delineate academic trends, thematic priorities, and collaborative patterns while pinpointing deficiencies in global health research output and equity.*

***Design/methodology/approach****– A bibliometric analysis was conducted using 62 articles retrieved from the Scopus database. VOSviewer software was employed to generate co-authorship, keyword co-occurrence, journal co-citation, and country collaboration maps. A descriptive qualitative approach, combining meta-analysis and visual bibliometric techniques, was used to interpret research patterns and thematic clustering.*

***finding****– Five major keyword clusters were identified: SDG core themes, health systems and policy, demographic health issues, disease burdens, and regional inequities. The findings reveal that research outputs are largely concentrated in high-income countries, with limited representation from low- and middle-income countries (LMICs). Collaborative networks were fragmented, and Global North journals such as The Lancet dominated co-citation patterns. The University of Ibadan emerged as a key contributor from sub-Saharan Africa, while mental health and obesity remained underexplored despite their rising global relevance.*

***Practical implications****– This study offers a rare bibliometric evaluation of SDG 3 research in developing regions, revealing systemic disparities in authorship, institutional capacity, and research dissemination. The results provide actionable insights for enhancing equitable collaboration, funding allocation, and thematic diversification to advance global health scholarship in alignment with the 2030 Agenda.*

***Keywords:*** *Sustainable Development Goal, Global Health, Developing Countries, Bibliometric Analysis, Maternal and Child Health.*

## 1. INTRODUCTION

Sustainability is defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Ten Have & Gordijn, 2020). According to the WHO, health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." WHO took a holistic view of health that has seen remarkably little argument in over seventy years. WHO's charter frames health as a basic human right, a government responsibility, and as fundamental to peace and security, both within nations and globally (Gostin, 2012). The International Community introduced the Sustainable Development Goals (SDGs) in 2015, which was endorsed by 193 countries in response to global challenges related to sustainability (Schmidt-Traub et al., 2017). This universal call to action is to end poverty, protect the planet, and improve the lives and prospects of everyone, everywhere. The SDGs serve as a universal framework, acknowledging diverse national circumstances while promoting global sustainability (Saxena et al., 2021).

The framework consists of 17 goals and 169 interconnected targets that apply to all countries and must be implemented collaboratively by governments, the private sector, civil society, and international institutions. The third SDG—Good Health and Well-being—has gained special attention, particularly due to global health threats such as the COVID-19 pandemic, which disrupted progress toward the 2030 Agenda (Khetrapal & Bhatia, 2020; Leal Filho et al., 2020). In this context, recent bibliometric studies highlight the growing academic attention to SDG-3-related health systems and institutional models, including faith-based and value-oriented health services such as halal hospitals, which are increasingly linked to broader sustainability and development agendas (Kamijantono et al., 2025).

There are thirteen targets addressing specific health and wellness issues. Targets 3.1 to 3.8 focus on population health, maternal and child mortality, communicable and non-communicable diseases, substance abuse, road traffic injuries, reproductive health, and universal health coverage. Target 3.9 addresses environmental health risks, while targets 3.a and 3.b relate to tobacco control and access to medicines and vaccines. The remaining targets emphasize health financing and capacity building. SDG 3 therefore addresses health priorities across the life course and underscores the role of inclusive, ethical, and sustainable health systems in achieving global well-being, particularly in developing countries (Kamijantono et al., 2025).

Sustainable development is essential for achieving human development goals without compromising future generations' needs. Quoc and Van Y (2024) emphasize that sustainability ensures the continued availability of vital resources for human survival. Proper resource utilization allows societies to meet present needs while safeguarding future welfare (Holden et al., 2014). This aligns with the original Brundtland definition, which frames sustainable development as balancing present and future needs (Brundtland, 1987). In recent years, sustainability has also expanded into consumer behavior, ethical production, and value-based industries, including halal sectors, where trust, labeling, and religiosity play an important role in shaping sustainable consumption decisions (Juliana et al., 2022; Kusnandar et al., 2025).

Globally, improving maternal and child health has long been a development priority. These goals were central to the Millennium Development Goals (MDGs) and remain core targets under SDGs 3.1 and 3.2 for the 2015–2030 period (WHO, 2025). Despite progress, disparities remain stark. Recent UN and WHO reports show persistently high child and maternal mortality rates, especially in sub-Saharan Africa and other developing regions (UN & IGME, 2024; WHO, 2023; Organization, 2016).

Research on SDG 3 has grown significantly over the past decade, particularly following the COVID-19 pandemic, reflecting heightened awareness of global health vulnerabilities. Bibliometric evidence indicates an increasing volume of SDG-related publications, although research output remains uneven between developed and developing countries (Sweileh, 2020; Raji & Demehin, 2023; Mishra et al., 2024). Studies also reveal that health-related SDGs are often interconnected with economic structures, labor systems, and social resilience, including emerging employment patterns such as the gig economy, which indirectly influence access to healthcare, income security, and well-being (Kamarul Zaman et al., 2025).

Consequently, assessing the current state of SDG-3 research through bibliometric analysis is crucial. Bibliometric tools such as VOSviewer enable the mapping of authors, journals, and thematic trajectories, helping to identify research gaps and future directions. Recent studies demonstrate that while global interest in SDG 3 continues to rise, contributions from developing countries remain limited due to funding, institutional capacity, and publication barriers (Sianes et al., 2022; Garnita et al., 2024). Strengthening inclusive research ecosystems—particularly those integrating ethical, cultural, and sustainability perspectives—remains essential for advancing SDG 3 and global health equity (Kamijantono et al., 2025; Juliana et al., 2022).

## METHODOLOGY

This study made use of journal publications related to “SDG 3 and Global Health Research” a cross-retrieved journals from Scopus database. Scopus, an online database with approximately 23,000 available journals across all fields of research, was used. Scopus is commonly used in bibliometric studies and is considered suitable for this purpose because it includes a larger number of indexed journals than Web of Science (Falagas et al., 2008). The development of publication trends related to the research topic will be analyzed using VOS viewer software, which can display bibliometric maps and allow for more detailed analysis.

The search string ("sustainable development goal 3" OR "sustainable development goal three" OR "sdg3" OR "sdg 3" OR "sdg3" OR "good health and well-being") AND ("global health" OR "world health") AND ("low income countries" OR "developing countries" was used to query the database across the title and abstract. With this search string, a total of 67articles was retrieved. From 2015 to 2024, the number of utilized articles decreased to 62, as recorded on 15/04/2025. The data range commenced in 2015, the year the Sustainable Development Goals were endorsed by 193 nations globally. The inclusion of 2024 was deemed appropriate, as a decade sufficed for a mid-term review, with less than five years remaining until 2030. The retrieved documents were devoid of additional restrictions. The author posited that the employed methodology maximized the retrieval of documents pertinent to the study of SDGs in developing countries. Data from Scopus was exported to Excel for tabulation and subsequently transferred to the VOS viewer program for mapping purposes. VOS viewer uses the abbreviation VOS which refers to Visualizing Similarity. In previous studies, the VOS mapping technique has been used to obtain bibliometric visualizations which were then analyzed. Furthermore, VOS viewer is able to create and display author journal maps based on co-citation data or keyword maps based on co-incident data. Therefore, in this study, an analysis of maps related to "SDG 3 and Global Health Research" will be carried out, including author maps, and keywords which are then analyzed for research paths that can be carried out in the future through clusters on keyword mapping. This study uses a descriptive qualitative approach with meta-analysis and descriptive statistical literature study based on 62 publications discussing the theme of "SDG3 and Global Health Research ". Meta-analysis is a method that integrates previous research related to a particular topic to evaluate the

results of existing studies. Furthermore, the qualitative method used in this study is also referred to as a constructive method, where the data collected in the research process will be constructed into a theme that is easier to understand and meaningful. The sampling technique used in this study is the purposive non-probability sampling method, which aims to meet certain information in accordance with the desired research objectives. Moreover, the analytical results of this research type can facilitate comparisons of the extent of research on various SDG 3 targets across global regions with an acceptable degree of accuracy.

## RESULTS AND DISCUSSION

### **3.1.** Bibliometric Author Mapping

A bibliometric analysis utilizing using VOS viewer software, yields a mapping of an author co-authorship network visualization was generated based on the retrieved articles (n = 62) published from 2015 to 2024 related to SDG 3 and global health research in developing countries. The map illustrates a low-density collaboration pattern among the most productive authors in this field. The visualization (see Figure 1) reveals that each identified author appears as an isolated node, indicating weak or nonexistent co-authorship links between them.

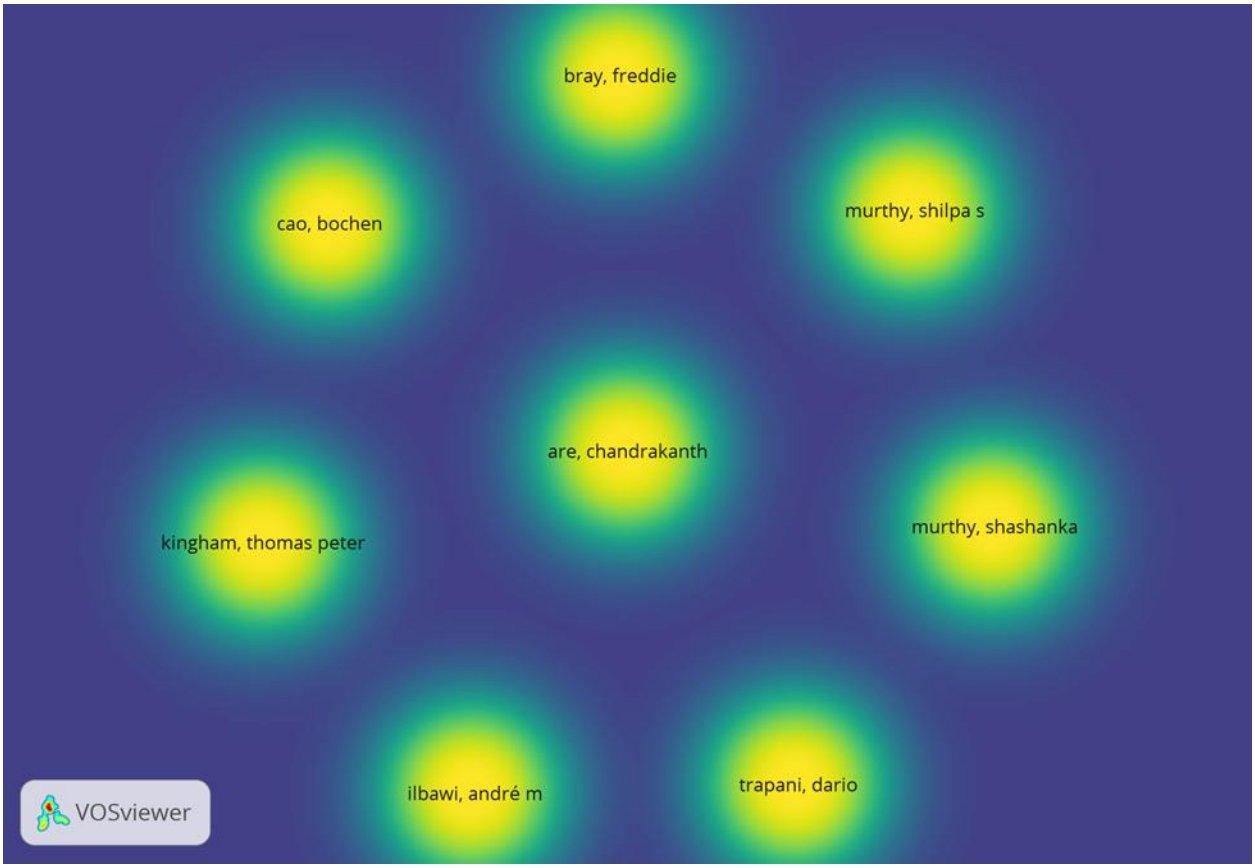


Figure 1:
Author contributed

Prominent authors such as Are, Chandrakanth; Murthy, Shashanka; Bray, Freddie; Murthy, Shilpa S; and Ilbawi, André M emerge as significant contributors based on citation frequency and publication volume. However, these authors are not connected within a single collaborative network. This lack of interconnection implies that research efforts in this area remain fragmented

and siloed. For example, Bray, Freddie is recognized for extensive contributions to global cancer epidemiology, often linking cancer surveillance with sustainable health system development—yet, in this dataset, Bray's collaborations did not extend to the other key authors (Are et al., 2023; Murthy et al., 2024)

Similarly, other notable researchers such as Kingham, Thomas Peter and Trapani, Dario are represented individually without observable co-authorship links. This trend underscores a critical limitation in SDG 3-related research: limited interdisciplinary and cross-border collaborations, particularly between researchers from low- and middle-income countries (LMICs). The isolation of nodes such as Cao, Bochen and Murthy, Shilpa S further illustrates the compartmentalization of research within institutional or regional boundaries rather than within global networks.

This observation corroborates earlier findings by Raji and Demehin (2023), who observed that despite increasing global interest in SDG 3, collaborative efforts remain predominantly among researchers from developed countries. Similarly, Mishra et al. (2024) highlighted a dominance of SDG-related publications by authors from high-income nations, with comparatively limited collaborative contributions from developing regions. This pattern restricts knowledge integration, hinders capacity-building, and poses challenges to achieving the SDG 3 targets globally.

### 3.2 Research Map

The figure below (figure 2) describes the trend of keywords that appear in the research on the theme of "SDG 3 and Global Health Research".

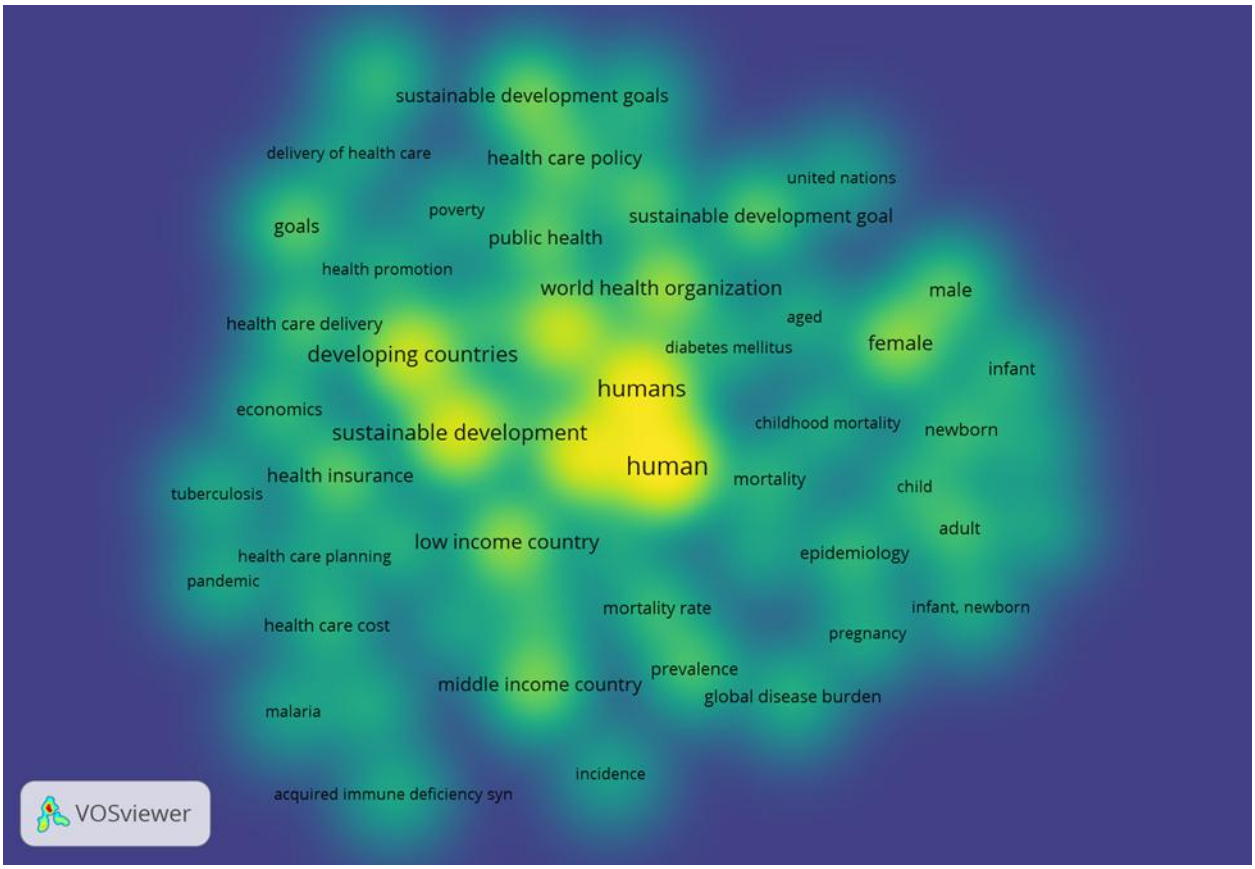


Figure 2.
Trend keyword.

In the mapping, the keywords that appear most frequently in the publication "SDG 3 and Global Health Research" include “human”, “humans”, “sustainable development”, and “developing countries”, which occurred with high frequency and were located at the center of the network which are then divided into 5 clusters, as follows:

*3.2.1 Cluster 1: Core Human Development and SDG Orientation*

This cluster contains 12 keyword item namely, human, humans, sustainable development, sustainable development goals, sustainable development goal, global health, public health, world health organization, goals, united nations, health promotion, health insurance. This cluster (12 keywords) forms the nucleus of the network, with *"human"* and *"sustainable development"* as the most central and frequently co-occurring terms. It captures foundational themes of the SDG agenda that emphasize holistic human development and global partnerships. Several studies relevant to the topic in cluster 1 include research from Sweileh (2020) conducted a comprehensive bibliometric analysis of SDG-related literature, revealing a research landscape primarily concentrated in the fields of medicine, environment, and social sciences. The study underscores the global relevance of SDG 3 but highlights a lack of integration across disciplines. Similarly, Mishra et al. (2024) evaluated SDG research output using the Web of Science database and identified rising scholarly interest, particularly from developed countries. However, the authors emphasized a critical gap in the consolidation of goal-specific efforts, noting a fragmented approach to global health that weakens the operationalization of SDG 3 across diverse regions.

In the context of sustainability-driven innovation, Gómez Pescador and Arzadun (2025) explored the integration of SDGs into business models. Their study observed a recent surge in literature linking business innovation to sustainability, but also flagged practical challenges in aligning economic viability with SDG mandates. This points to the need for multi-stakeholder collaboration to reinforce the human development paradigm that underpins SDG 3.

*3.2.2 Cluster 2: Health Systems, Policy, and Institutional Support*

The second cluster is distinguished by terms such as *“health care policy,” “delivery of health care,”* and *“health insurance,”* indicating scholarly emphasis on institutional mechanisms that govern the implementation of SDG 3This cluster has eleven (11) keywords which include; health care delivery, delivery of health care, health care policy, health care cost, health care planning, health insurance, health promotion, world health organization, pandemic, economics, poverty. A number of studies that examine matters relevant to the topic in cluster 2 include Jha and Chaloupka (2000), in their seminal work on the health and economic impacts of tobacco in developing countries, illuminated the absence of robust fiscal and regulatory policies aimed at reducing tobacco-related mortality. Their policy-oriented recommendations—including taxation, public education, and advertising bans—remain underutilized in low-income countries, exposing a persistent implementation gap.

Garnita et al. (2024) offered an alternative methodological lens by analyzing student theses from Universitas Indonesia as contributions to SDG 3. Their findings reveal that non-indexed institutional outputs can serve as critical knowledge repositories, particularly in underrepresented regions. The work exposes a systemic undervaluing of grey literature, suggesting a redefinition of what constitutes valid academic contributions in global health.

Raji and Demehin (2023) further highlighted systemic barriers in LMICs, including low research funding, weak institutional infrastructure, and limited publication in high-impact journals. Their bibliometric and systematic review found a high international collaboration index but

disproportionate regional contributions, underlining the structural inequities embedded within global academic publishing ecosystems.

*3.2.3 Cluster 3: Demographic-Specific and Life Course Health*

This cluster contains 14 keywords namely; maternal health, infant, newborn, child, childhood mortality, mortality, mortality rate, adult, aged, male, female, pregnancy, infant newborn, prevalence. Cluster 3 is pointing to research focused on "maternal health," "childhood mortality," and "pregnancy," thus population-specific vulnerabilities in alignment with SDG 3 targets 3.1 and 3.2. Relevant to this cluster is the World Health Organization (2023) reported that approximately 287,000 women died from maternal causes in 2020, translating to nearly 800 deaths per day. These figures highlight a disturbing stagnation in maternal mortality reduction, particularly in sub-Saharan Africa and South Asia. Similarly, the United Nations Inter-agency Group for Child Mortality Estimation (UN & IGME, 2024) found that 4.8 million children died before reaching age five in 2023, with children in sub-Saharan Africa being 18 times more likely to die than those in high-income countries. These reports reinforce the clustering of keywords related to perinatal and neonatal health as persistent focal points in SDG 3 scholarship.

In a parallel stream of research, Ueda Yamaguchi et al. (2025) investigated the intersection of obesity, overweight, and the SDGs. Despite increasing prevalence and associated morbidity, their findings reveal a limited body of academic work linking obesity to SDG 3, suggesting an urgent need for integrative studies that expand the scope of demographic health beyond infectious and reproductive health paradigms.

*3.2.4Cluster 4: Disease Burden and Epidemiological Priorities*

This cluster contains 13 keywords which include tuberculosis, malaria, diabetes mellitus, acquired immune deficiency syndrome, global disease burden, incidence, epidemiology, non-communicable disease, communicable disease, pandemic, health loss, mortality rate, infection. The cluster encompasses both communicable and non-communicable disease burdens, including keywords such as "tuberculosis," "malaria," "diabetes mellitus," and "pandemic." The dual burden of disease remains a dominant narrative in SDG 3 research.

Jha and Chaloupka (2000) again contribute meaningfully to this domain through their economic modeling of the tobacco epidemic. Their work anticipates a rising trajectory of NCDs in LMICs, warning of up to 10 million tobacco-related deaths annually by 2030. Despite the early publication of their study, the predicted trends continue to materialize, indicating limited policy uptake of their recommendations.

Sweileh (2020) noted that while global health dominates SDG-related discourse, there remains a thematic imbalance with an overemphasis on certain diseases and neglect of others such as mental health and emerging NCDs. Ueda Yamaguchi et al. (2025) further emphasized this imbalance, stating that obesity—despite its global impact—is not formally prioritized within the Agenda 2030 framework. This omission constrains resource mobilization and obstructs effective policy formulation.

*3.2.5 Cluster 5: Regional and Socioeconomic Context*

This final cluster contains 10 keywords namely; developing countries, low income country, middle income country, poverty, health disparity, health loss, sub-Saharan Africa, economics, equity, social inequality. This underscores structural determinants of health and geographic inequities, with keywords such as "developing countries," "poverty," and "sub-Saharan Africa."

Mishra et al. (2024) documented a concentration of SDG 3 research in high-income countries, with low- and middle-income countries contributing minimally to the scholarly corpus despite bearing the highest disease burden. This geographic skew reinforces the need for capacity-building initiatives and equitable research funding mechanisms.

M Nayak and Nayak (2025) highlighted the transformative potential of grassroots participation in the SDG agenda. Their work points to a gap between global policy aspirations and local implementation capabilities, advocating for community-based models to enhance health equity. Similarly, Navarro-Pabsdorf et al. (2024) emphasized the role of localized knowledge systems and participatory governance in embedding sustainability practices within national frameworks. Their study identified social inequality and lack of civic engagement as critical barriers to achieving SDG 3 targets.

## 4.0 Country Co-authorship network

The figure below describes country co-authorship that appear in the research on the theme of "SDG 3 and Global Health Research".

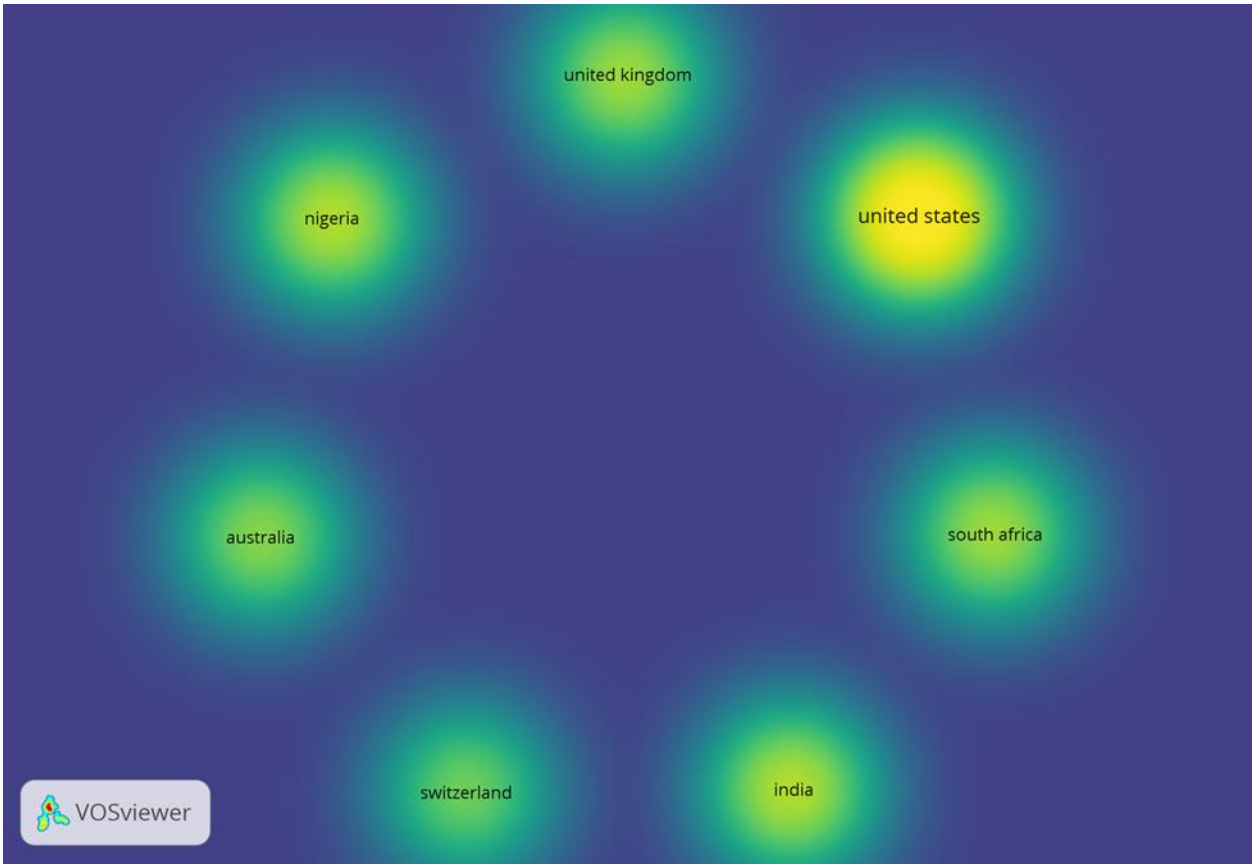


Figure 3
Country co-authorship

The country co-authorship network map presented in Figure 3 (see VOS viewer visualization) highlights the global landscape of collaborative research efforts on Sustainable Development Goal 3 (SDG 3) and global health between 2015 and 2024. This visualization reveals a notable concentration of international collaborations among a select group of countries, with the

United States emerging as the most prominent node, indicating its central role in shaping the research agenda on SDG 3.

The map displays a total of seven countries with substantial co-authorship strength. The United States, United Kingdom, Nigeria, South Africa, India, Australia, and Switzerland. The density of the yellow hue around the United States suggests its dominant influence and extensive partnerships, particularly with both developed and developing nations. This centrality reflects the United States' robust research infrastructure, significant funding capacity, and long-standing engagement in global health initiatives ((Mishra et al., 2024; Sweileh, 2020).

The United Kingdom also features prominently in the network, acting as a pivotal hub linking high-income countries such as Switzerland and Australia with lower- and middle-income countries (LMICs) like Nigeria, India, and South Africa. This pattern aligns with Raji and Demehin (2023)observations of high collaboration indices among institutions in the UK and Switzerland, often facilitated by international development agencies and global health alliances.

Among LMICs, Nigeria, South Africa, and India show active engagement in international collaboration. Their visibility in the map signifies growing research output and partnership-oriented approaches to address regional health challenges, including infectious diseases, maternal and child mortality, and access to universal healthcare (Khetrapal & Bhatia, 2020; WHO, 2023). Nigeria and South Africa, in particular, have become increasingly active participants in global health research, often through partnerships with universities and health organizations from the Global North (Gómez Pescador & Arzadun, 2025).

Switzerland's presence, despite being a smaller country in terms of population, is likely attributed to its strategic positioning as the host of key global health institutions such as the World Health Organization (WHO), which enhances its collaborative influence in SDG 3 research (Gostin, 2012). Similarly, Australia's consistent appearance reflects its scholarly engagement in health-related SDG research, especially in the Asia-Pacific region (Sianes et al., 2022).

These co-authorship patterns underline a persistent North-South research dynamic, where high-income countries drive the majority of scholarly output, but increasingly involve developing nations as co-investigators or collaborators. While this suggests knowledge transfer and capacity-building potential, it also raises concerns about research equity, authorship inclusion, and agenda-setting dominance by institutions in the Global North (Mörschbächer & Granada, 2022).

Notably absent from the network are many low-income and conflict-affected countries, highlighting the uneven distribution of research resources and infrastructural support needed for scholarly participation in global health discourse. This corroborates previous findings that research outputs from sub-Saharan Africa remain disproportionately low despite the region bearing a heavy burden of global disease (Jha & Chaloupka, 2000; Mishra et al., 2024).

## 5.0 Journal co-citation network

The figure below describes journal co-citation network that appear in the research on the theme of "SDG 3 and Global Health Research".

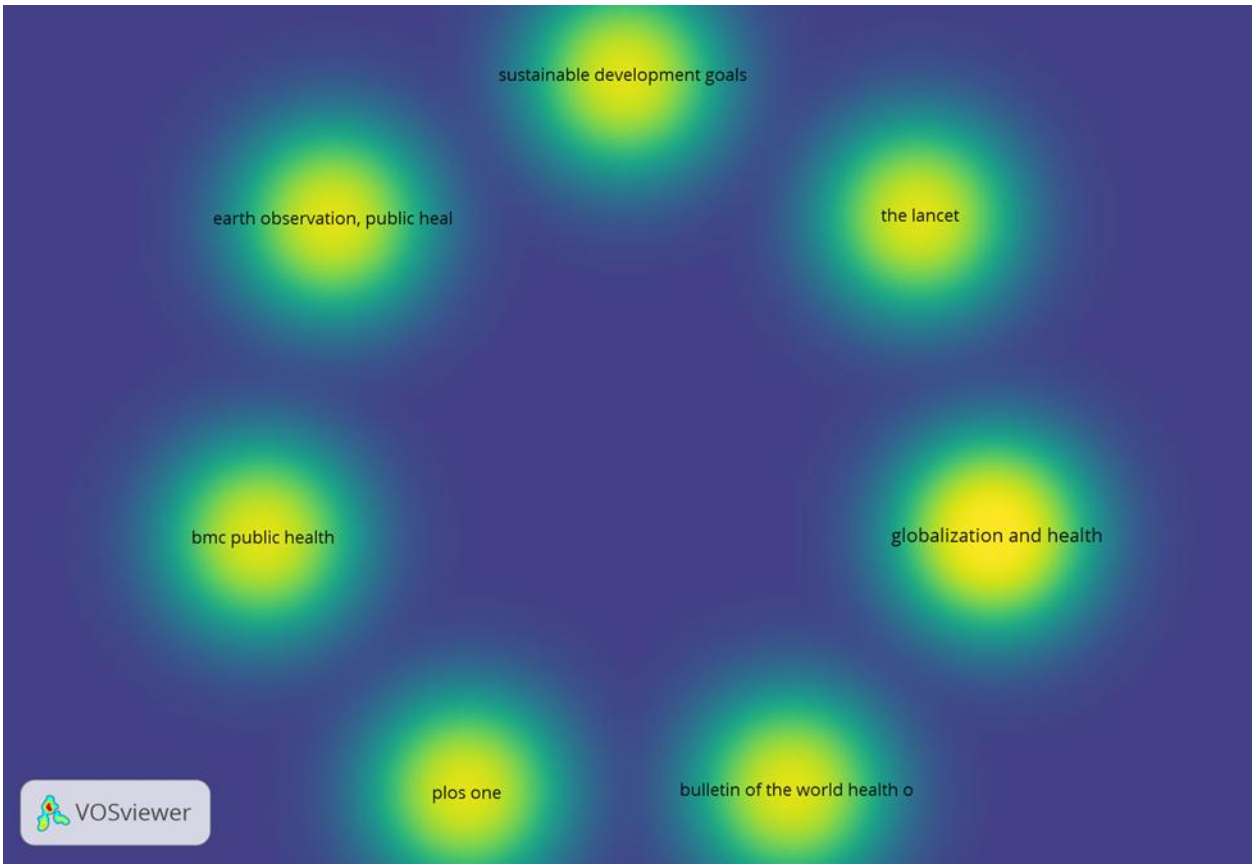


Figure 4
Journal co-citation network

The VOS viewer visualization (Figure 4) of the journal co-citation network reveals the core publication outlets that have played a central role in disseminating research on SDG 3 (Good Health and Well-being) and global health, particularly in the context of developing countries. The map displays seven primary journal sources that are most frequently co-cited in the field. They include the Lancet, BMC Public Health, PLOS ONE, Bulletin of the World Health Organization, Globalization and Health, Earth Observation and Public Health, and publications categorized under the broader heading of Sustainable Development Goals.

Among these, The Lancet emerges as a prominent source, reflecting its global prestige and reputation for publishing high-impact studies on global health, epidemiology, and health policy. Its central positioning in the map corresponds with its consistent focus on global health inequities, infectious diseases, and maternal and child health—core themes of SDG 3. The journal's frequent co-citation suggests its foundational role in anchoring both empirical and policy-relevant scholarship (Mishra et al., 2024).

BMC Public Health and Globalization and Health also appear as significant nodes in the network. These journals are known for open-access dissemination of public health research and interdisciplinary studies that span health systems, social determinants, and global policy. Their prominence underscores the growing recognition of socio-political and economic drivers of health, and the importance of equity and accessibility in advancing SDG 3 outcomes (Raji & Demehin, 2023; Sweileh, 2020).

PLOS ONE and the Bulletin of the World Health Organization (WHO) further reflect the diversity of scholarly contributions in the domain. While *PLOS ONE* provides a multidisciplinary

outlet with a broad scope for public health and development-related studies, the WHO Bulletin is particularly influential in translating scientific evidence into policy, especially for low- and middle-income countries (LMICs). The Bulletin's inclusion aligns with WHO's strategic role in shaping health-related SDGs and its advocacy for universal health coverage and primary health care (WHO, 2023).

The emergence of Earth Observation and Public Health as a co-cited source is indicative of a relatively newer trend where spatial analysis, satellite data, and environmental monitoring are being leveraged to understand and predict public health trends. This reflects the increasing interdisciplinarity in SDG 3-related research and the integration of planetary health approaches into traditional public health frameworks (Gómez Pescador & Arzadun, 2025).

The broader label Sustainable Development Goals in the visualization likely represents publications or special issues in multidisciplinary journals focusing on SDG frameworks. These may include reports, reviews, or thematic issues devoted to evaluating progress on SDG 3 targets, especially in vulnerable regions. This reflects a trend where health research is increasingly contextualized within the broader sustainability and development discourse (M Nayak & Nayak, 2025).

Collectively, this journal network analysis illustrates the multidisciplinary and global nature of SDG 3 research. It also highlights the dominant role of journals based in the Global North, which continue to serve as gatekeepers of global health knowledge. This dynamic raises important questions about accessibility, research representation, and agenda-setting in health scholarship. For developing countries to play a more prominent role in shaping the discourse, enhanced funding for local journals, increased visibility of regional health challenges, and more equitable peer-review practices are essential (Jha & Chaloupka, 2000; Mörschbächer & Granada, 2022).

## 6.0 Year-on-year research output

The figure below describes year-on-year research output that appear in the research on the theme of "SDG 3 and Global Health Research".

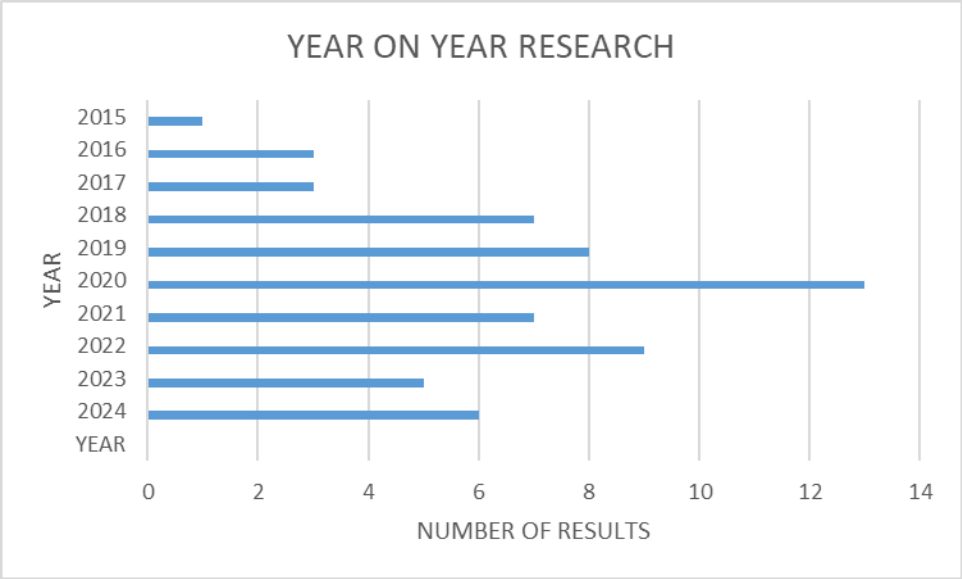


Figure 5
Year-on-year research output

The year-on-year distribution of publications on Sustainable Development Goal 3 (SDG 3) and global health from 2015 to 2024, as illustrated in Figure 5, reveals important trends in scholarly attention over the past decade. This temporal analysis provides critical insight into how research activity has evolved since the adoption of the SDGs and in response to major global health events, particularly the COVID-19 pandemic.

The trajectory begins modestly in 2015 with only a single publication, reflecting the early stage of scholarly engagement with SDG 3 following its official launch. By 2016 and 2017, research output saw a slight increase, with 2 and 3 articles published respectively. This gradual growth may be attributed to the time needed for scholars and institutions to align research priorities with the newly adopted development agenda.

A significant uptick in publications is observed in 2018 (7 results), indicating a turning point in academic mobilization around SDG 3. This growth trend continued into 2019 and peaked dramatically in 2020, which recorded the highest number of outputs (13 results). This spike is consistent with the global outbreak of COVID-19, which prompted an unprecedented surge in research across health systems, disease prevention, and pandemic preparedness—core components of SDG 3 (Khetrapal & Bhatia, 2020; WHO, 2023). The global health emergency not only underscored the vulnerabilities in healthcare infrastructures, especially in developing countries, but also catalyzed collaborative and multidisciplinary research endeavors.

In the aftermath of the pandemic's peak, the publication volume slightly declined but remained relatively high in 2021 (7 results) and 2022 (6 results), reflecting a sustained academic interest in the systemic health implications and the policy lessons emerging from the crisis. This suggests a shift from reactive to reflective research, focusing on resilience, recovery, and future preparedness (Sweileh, 2020).

Notably, 2023 witnessed a dip in output (4 results), possibly reflecting a combination of pandemic fatigue, shifts in global funding priorities, or a lag in the publication cycle. However, the year 2024 marked a modest recovery to 6 publications, which may signal a renewed focus on the 2030 Agenda as the deadline approaches, spurring mid-term assessments and prospective evaluations of progress toward SDG targets (UN & IGME, 2024).

The overall distribution pattern reveals a dynamic but uneven growth in SDG 3 research output over the past decade. Early years were marked by limited attention, while the COVID-19 pandemic served as a catalytic event, triggering intense scholarly focus on global health. The years following the pandemic appear to be characterized by recalibration, with research efforts oriented toward long-term health system strengthening and sustainable recovery pathways.

From a regional and thematic perspective, this trend aligns with the observations by Raji and Demehin (2023), who noted a growing yet fluctuating research volume in developing countries, often constrained by funding gaps, infrastructural limitations, and publication access barriers. While high-income countries have dominated in output and impact, the bibliometric trajectory suggests increasing contributions from low- and middle-income countries (LMICs), particularly during global crises.

## 7.0 Institutional Contributions

The figure below describes institutional contributions that appear in the research on the theme of "SDG 3 and Global Health Research".

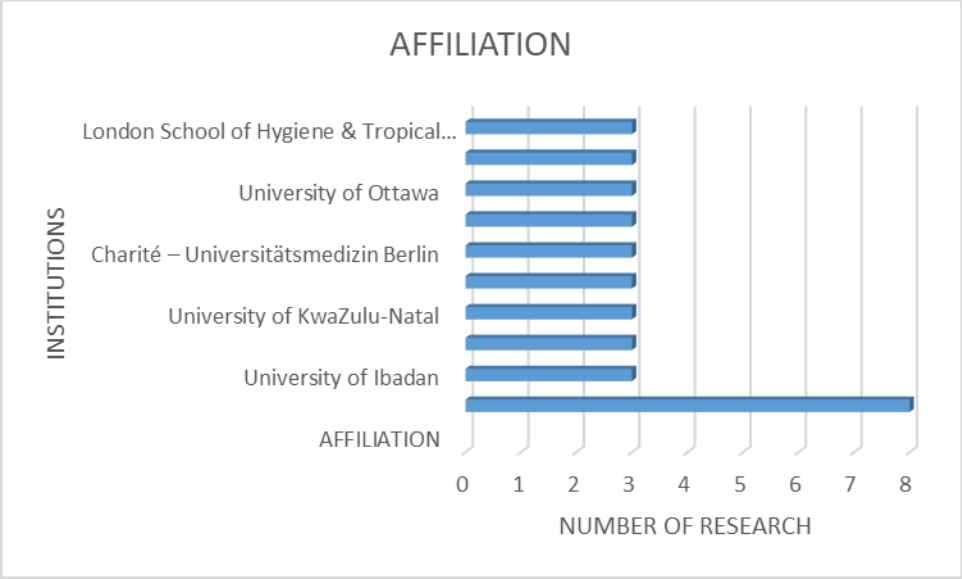


Figure 6
Institutional contributions

The institutional affiliation analysis (Figure X) highlights the leading academic and research institutions contributing to the body of literature on Sustainable Development Goal 3 (SDG 3) and global health between 2015 and 2024. This analysis provides insight into the geographic distribution and institutional strengths that underpin scholarly output in this domain, particularly with respect to research originating from or focusing on developing countries.

Among the institutions identified, the University of Ibadan stands out with a substantial lead, contributing to 8 publications related to SDG 3—more than double the output of any other institution in the sample. This finding underscores the institution's growing role as a leading hub for public health research in sub-Saharan Africa. As Nigeria continues to grapple with high burdens of infectious and non-communicable diseases, maternal and child mortality, and underfunded healthcare systems, the University of Ibadan has emerged as a critical actor in shaping evidence-based responses and informing policy (Raji & Demehin, 2023).

The University of KwaZulu-Natal in South Africa and Charité – Universitätsmedizin Berlin in Germany each contributed three studies to the dataset. The former reflects South Africa's regional leadership in health research, particularly in areas such as HIV/AIDS, tuberculosis, and health system strengthening. The latter, Charité, represents a significant European contributor to global health literature, especially through its long-standing collaborations with African and low- to middle-income country (LMIC) institutions.

Other notable contributors include the University of Ottawa and the London School of Hygiene & Tropical Medicine, each also contributing three publications. These institutions are globally recognized for their interdisciplinary approaches to health, equity, and development research. Their presence in this analysis reinforces existing trends in North–South academic collaboration, wherein high-income country institutions often provide funding, technical expertise, and co-authorship opportunities for researchers in LMICs (Mishra et al., 2024; Sweileh, 2020).

Despite the diversity of contributing institutions, the overall pattern reflects persistent disparities in global research capacity. High-income countries still dominate in volume and visibility of output, while institutions in developing nations are underrepresented despite bearing the brunt of the health challenges targeted by SDG 3. This institutional asymmetry has been widely discussed in the literature, with calls for greater investment in research infrastructure, capacity-

building, and locally led inquiry in LMICs (Jha & Chaloupka, 2000; Mörschbächer & Granada, 2022).

The leadership shown by the University of Ibadan offers a compelling counter-narrative, demonstrating that with targeted support and strong institutional networks, research excellence can thrive in the Global South. However, the relatively low output from other African, Asian, and Latin American institutions signals the continued need for equitable partnerships, research funding democratization, and regional publication platforms to amplify context-specific insights.

**Discussion**

The current analysis of Sustainable Development Goal 3 (SDG 3) and global health research in developing countries, drawn from a bibliometric perspective, provides a nuanced understanding of research patterns, authorship dynamics, thematic focuses, institutional contributions, and geographic distribution. Grounded in both quantitative bibliometric mapping and qualitative meta-analysis, the findings highlight both progress and systemic gaps in the global health research ecosystem as it relates to SDG 3—Good Health and Well-being.

The author co-authorship network (Figure 1) reveals a fragmented research landscape characterized by isolated scholarly contributions rather than integrated research clusters. Prominent contributors such as Bray, Freddie and Murthy, Shashanka remain unconnected to one another, underscoring the limited interdisciplinary or cross-institutional collaboration. This aligns with Raji and Demehin (2023) findings that although research volume on SDG 3 is growing, it is often concentrated in silos, particularly among scholars from high-income countries. The lack of strong South-South research networks presents a major obstacle to achieving inclusive health innovations, especially in LMICs.

The keyword mapping (Figure 2) offers critical insights into the intellectual architecture of SDG 3-related research. The five identified clusters—ranging from human development to demographic health and disease burdens—demonstrate the multidimensionality of global health scholarship. Clusters on maternal and child health, infectious diseases, and non-communicable diseases reflect alignment with SDG 3 targets, such as 3.1 (maternal mortality), 3.2 (child mortality), and 3.4 (non-communicable diseases). However, some gaps are evident.

Despite the growing prevalence of obesity and mental health issues globally, these topics remain underrepresented, as noted by Ueda Yamaguchi et al. (2025). Similarly, Gómez Pescador and Arzadun (2025) highlighted the limited integration of business models into public health sustainability strategies, underscoring missed opportunities for public-private partnerships. These findings echo (Sweileh, 2020) and Mishra et al. (2024), who both advocate for broader thematic integration and a shift from fragmented approaches to holistic, systemic research designs.

The country co-authorship network (Figure 3) depicts an imbalance in global research collaboration. The United States and United Kingdom dominate, serving as central nodes with extensive linkages to both developed and developing countries. However, the absence of many LMICs, particularly from sub-Saharan Africa and conflict-affected regions, points to enduring research inequities (Mörschbächer & Granada, 2022). While countries like Nigeria, South Africa, and India demonstrate growing collaborative engagement, their contributions remain secondary to those of Global North counterparts.

Institutionally, the University of Ibadan emerges as a notable outlier from the Global South, contributing substantially to SDG 3-related literature (Figure 6). Nevertheless, overall institutional participation is skewed towards Global North universities such as Charité – Universitätsmedizin Berlin and the London School of Hygiene & Tropical Medicine. These patterns reinforce earlier

critiques by Jha and Chaloupka (2000) regarding the systemic underrepresentation of developing countries in global health research and the need for decolonizing knowledge production systems.

The journal co-citation map (Figure 4) shows that high-impact journals such as *The Lancet*, *BMC Public Health*, and *Globalization and Health* dominate the field. While their influence ensures academic rigor, their concentration in the Global North raises concerns over research gatekeeping, agenda-setting, and linguistic or financial barriers to publication for scholars in LMICs. Sweileh (2020) and Gómez Pescador and Arzadun (2025) both warn that unless equitable publishing pathways are established, important local insights will continue to be excluded from the global evidence base.

The year-on-year analysis (Figure 5) illustrates the evolution of scholarly interest, with a marked peak in 2020 during the COVID-19 pandemic. This aligns with global crises acting as catalytic events for health research, as noted by (Khetrapal & Bhatia, 2020). However, the subsequent decline post-2021 reflects shifting funding landscapes, potential pandemic fatigue, and changing institutional priorities. This temporal fluctuation, while understandable, underscores the need for consistent and sustained research support independent of crisis events (Raji & Demehin, 2023).

## 8.1 Implications

### 8.1.2 Theoretical Implications

The research findings have significant theoretical implications. The observed weak co-authorship links in the author map suggest limited collaboration, particularly among scholars from low- and middle-income countries (LMICs). This aligns with Granovetter (1976)"strength of weak ties" theory, which suggests that sparse connections limit information flow and innovation across networks. The dominance of authors, institutions, and journals from high-income countries reflects Dependency Theory Frank (1974), which asserts that peripheral nations remain dependent on core nations for knowledge production, creating asymmetries in global academic influence (Mishra et al., 2024; Raji & Demehin, 2023). Also, the clustering around siloed keywords shows limited interdisciplinary research. This challenges the systems thinking paradigm Meadows (2008), which posits that complex global challenges—such as health, poverty, and inequality—must be tackled holistically. Again, the increased focus on topics like obesity and mental health points to an evolving theoretical discourse on non-communicable diseases and health equity in the SDG 3 framework Sweileh (2020); Ueda Yamaguchi et al. (2025) as well as the growing role of bibliometrics in synthesizing knowledge and assessing scholarly impact, reinforcing bibliometric analysis as a methodological asset in SDG-focused meta-research Falagas et al. (2008), (Mishra et al., 2024) constitute the theoretical implications.

### 8.1.3 Practical Implications

The study was not without practical implications. This include the importance of redistributing research funding toward LMIC institutions, such as the University of Ibadan, which has demonstrated leadership in SDG 3 research (Raji & Demehin, 2023; WHO, 2023). The lack of cross-institutional collaboration underlines the need for regional and global consortia to strengthen interdisciplinary and interregional research ties (Mörschbächer & Granada, 2022; Sweileh, 2020). The lack of cross-institutional collaboration underlines the need for regional and global consortia to strengthen interdisciplinary and interregional research ties (Mörschbächer & Granada, 2022; Sweileh, 2020). Also, the use of student theses by Garnita et al. (2024) highlights the potential of grey literature in supplementing underrepresented research themes, which should be digitized and

mainstreamed. Obesity and mental health are still marginal topics despite their growing burden. Policymakers should revise national SDG health strategies to incorporate these overlooked areas (Ueda Yamaguchi et al., 2025; WHO, 2023). The bibliometric timeline shows uneven research trends, stressing the importance of regular reviews to adjust strategies ahead of the 2030 SDG deadline (UN & IGME, 2024). Finally, the journal co-citation network reveals concentration in Global North journals. Strengthening local journals through indexing and funding is key to diversifying the global research narrative (Gómez Pescador & Arzadun, 2025; Sweileh, 2020).

### 8.2 Limitations and Future Research

Despite providing valuable insights into the evolution and trajectory of SDG 3 and global health research, this study has several limitations. The reliance solely on the Scopus database excludes relevant publications from other academic repositories such as Web of Science, PubMed, and Google Scholar. This limits the comprehensiveness of the bibliometric mapping, especially considering the diverse sources in global health literature (Falagas et al., 2008). The analysis is constrained by the predominance of English-language publications and outputs from institutions in the Global North. This excludes potentially impactful work published in regional languages or local journals in developing countries, leading to a Western-centric knowledge bias (Mörschbächer & Granada, 2022). Non-indexed publications such as policy briefs, institutional reports, and student theses—especially those from LMICs—were not systematically included. Although Garnita et al. (2024) highlighted the importance of such outputs, their exclusion results in an underestimation of the contributions from local academic ecosystems. Also, the author co-authorship and institutional collaboration maps reveal fragmented networks, with limited South–South or intra-regional collaboration among LMIC-based scholars. This underrepresentation may distort the understanding of locally driven research priorities and solutions (Raji & Demehin, 2023). While the study covered publications from 2015 to 2024, the bibliometric analysis may not fully capture long-term research patterns or delayed citation trends, especially for studies published in the latter part of the timeline. This could lead to an undervaluation of recent or emerging contributions (Mishra et al., 2024). Finally, the use of VOS viewer keyword co-occurrence analysis may oversimplify thematic trends by clustering diverse topics under broad terminologies such as "human" or "developing countries," which could obscure nuanced insights into specific health concerns (Sweileh, 2020).

Building on the findings and limitations of this study, several recommendations are proposed to strengthen future scholarly work and enhance policy relevance in the context of SDG 3 and global health. Future studies should integrate multiple bibliometric databases (e.g., Web of Science, PubMed, Embase) to provide a more comprehensive mapping of global health research, particularly to include publications from underrepresented regions and disciplines. Thematic gaps such as mental health, obesity, and the intersection of environmental determinants with health require increased scholarly attention. Future studies should use interdisciplinary methods to explore these complex health challenges within the SDG framework (Ueda Yamaguchi et al., 2025). Researchers should consider longitudinal bibliometric methods that account for citation latency and policy impacts over time. This will offer more robust evaluations of research influence and SDG 3 progress. Future bibliometric studies should evaluate not only research output but also its translation into policy and practice. Linking publication trends with health outcomes or policy adoption can bridge the gap between academic inquiry and real-world impact (Scheres & Kuszewski, 2019). Future bibliometric studies should evaluate not only research output but also its translation into policy and practice. Linking publication trends with health outcomes or policy

adoption can bridge the gap between academic inquiry and real-world impact (Scheres & Kuszewski, 2019).

## CONCLUSION

This report offers a thorough bibliometric analysis of research trends concerning Sustainable Development Goal 3 (SDG 3) and global health in developing nations from 2015 to 2024. The results demonstrate that although academic interest in SDG 3 has increased—particularly due to the COVID-19 pandemic—research production is predominantly centered in the Global North, with minimal institutional and authorial representation from low- and middle-income countries (LMICs). Principal research themes focus on maternal and child health, disease burden, demographic vulnerabilities, and the structural imbalances that underlie global health disparities. Despite this subject diversity, notable deficiencies remain in tackling emerging issues like as mental health, obesity, and health equity through interdisciplinary approaches. Furthermore, collaboration is constrained, characterized by disjointed co-authorship networks and an absence of South–South relationships, which intensifies knowledge disparities.

The analysis underscores the influence of prominent journals and universities in defining the worldwide research agenda for SDG 3, with noteworthy contributions from journals such as The Lancet and institutions like the University of Ibadan. The co-citation network indicates that the publication ecosystem remains predominantly influenced by high-impact journals located in the Global North, hence perpetuating obstacles to inclusive knowledge transmission. To achieve the full potential of SDG 3 by 2030, enhanced investments in regional research capabilities, equitable partnership structures, and inclusive publication platforms are essential. Future initiatives must not only monitor academic production but also guarantee its incorporation into policy and practice. Rectifying these structural gaps is crucial for cultivating a more equitable, inclusive, and effective global health research framework that corresponds with the fundamental principles of the SDGs.

## Author contribution statement

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