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Global Trends and Research Dynamics of Community-Based Health Literacy

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Abstract:
Community-based health literacy has emerged as a critical determinant of public health outcomes, particularly amid global health crises and the rapid evolution of the digital information landscape. Despite a growing body of literature, the intellectual structure, thematic evolution, and patterns of scientific collaboration in this field remain insufficiently systematized. This study aims to analyze global trends, themes, collaboration patterns, and scientific impact of community-based health literacy research from 2007 to 2026 using a bibliometric approach. This study employs a bibliometric analysis of 173 articles indexed in the Scopus database from 2007 to 2026. Articles were selected through title and abstract screening based on predefined inclusion criteria. Data analysis was conducted using Microsoft Excel for descriptive statistics, VOSviewer for mapping collaboration networks and keyword co-occurrence, and Biblioshiny for assessing publication trends and citation metrics. The findings reveal a marked acceleration in publication output after 2020, with a peak in 2025. Geographically, research production is highly concentrated in China and the United States, both of which also occupy central positions within global collaboration networks. Thematic analysis indicates a predominance of quantitative, survey-based methodologies, with the COVID-19 pandemic acting as a major driver of research activity. Temporal trends demonstrate a gradual shift from crisis-oriented studies toward digital health communication and information dissemination, although methodological approaches remain relatively unchanged. Community-based health literacy research is undergoing rapid expansion and increasing thematic diversification; however, it remains characterized by geographic concentration and limited methodological innovation. Future research should prioritize more inclusive international collaboration and the development of longitudinal and interventional study designs to enhance conceptual maturity and global applicability in this field.

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INTRODUCTION

Health literacy has become a critical determinant of public health outcomes, influencing individuals' ability to access, understand, evaluate, and effectively use health information (Zolbin et al., 2022). Initially conceptualized as a set of individual cognitive skills, particularly reading and comprehension of medical information, health literacy has evolved into a broader, multidimensional construct (Urstad et al., 2022). Contemporary perspectives emphasize that health literacy is shaped not only by individual capabilities but also by the social, institutional, and communication environments in which individuals operate (Osborne et al., 2022).

This conceptual evolution has led to the emergence of community-based health literacy, which highlights the collective, participatory, and context-dependent nature of health knowledge and

practices (Beese & De Gani, 2025). Unlike individual-centered approaches, community-based health literacy conceptualizes health capacity as a product of social interactions within communities, including the roles of social networks, social capital, local leadership, and community-based information dissemination (Upreti et al., 2023). This perspective aligns with the socio-ecological model, which situates health behaviors within dynamic, multilevel interactions among individuals, communities, organizations, and policy environments (Paat et al., 2024).

The importance of community-based health literacy has been further underscored by the COVID-19 pandemic, which exposed the critical role of health information in shaping public behavior (Khuancharee et al., 2026). During the global health crisis, health literacy influenced risk perception, adherence to public health measures, vaccine acceptance, and resilience against misinformation (Bas-Sarmiento et al., 2022). At the same time, the rapid digitalization of information ecosystems has increased the complexity of health communication, reinforcing the need for collective competencies to navigate, interpret, and apply health information across social and digital contexts (Mubarak, 2026).

Despite the growing volume of research in this area, the scientific landscape of community-based health literacy remains insufficiently mapped (Mathias et al., 2023). Existing bibliometric studies have largely focused on health literacy in general, with limited attention to the development of community-based perspectives (Gümüş & Doğdu, 2025). Consequently, there is a lack of a comprehensive understanding of publication trends, geographic distribution, collaboration networks, and thematic evolution in this field. Such insights are essential for identifying research gaps, guiding future inquiry, and fostering methodological innovation (Ojeda et al., 2025).

To address this gap, this study employs a bibliometric approach to systematically examine community-based health literacy research published between 2007 and 2026. By analyzing publication growth, international collaboration patterns, thematic structures, temporal dynamics, and citation impact using tools such as Microsoft Excel, VOSviewer, and Biblioshiny, this study aims to map the field's intellectual structure and development trajectory. The findings are expected to contribute to a deeper understanding of its conceptual maturity and to identify opportunities to advance research and strengthen its global relevance (Sharma & Shenoy, 2024).

METHOD

Study Design

This research used a bibliometric approach, a quantitative method for analyzing and mapping the development of scientific publications in a specific field of study. This approach aims to identify publication patterns, research trends, scientific collaborations, and the focus and novelty of research topics and theories in the field of community-based health literacy. The bibliometric approach was chosen because it can objectively and quantitatively identify publication patterns, relationships between concepts, author networks, and primary scientific sources.

Data Collection

The research data were obtained from the Scopus database; this selection was based on its reputation as one of the largest and most credible international scientific databases. The search process was conducted on February 10, 2026, with a publication period spanning from 2007 to 2026. This study began with the literature identification stage, conducted through a systematic search using the query "health literacy" AND ("community-based health literacy" OR "community health literacy" OR "collective health literacy" OR "public health literacy". The search resulted in 258 articles.

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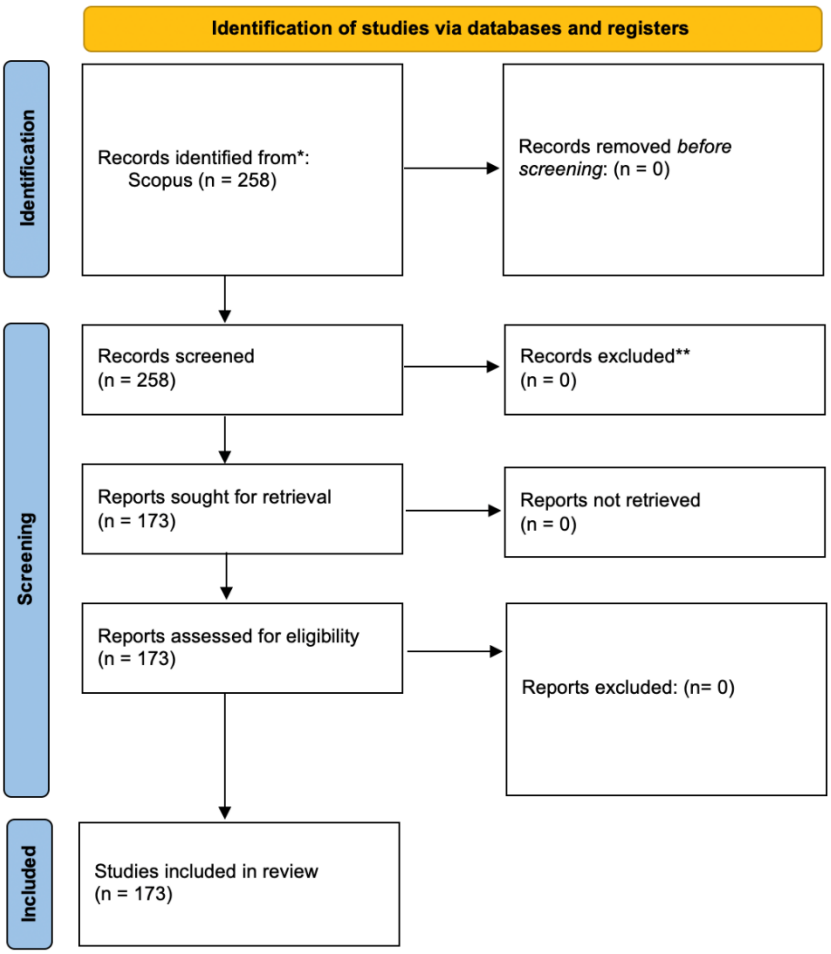

Figure 1. Prisma Flow Chart

The next stage was screening the identified documents to ensure the title and abstract matched the research focus. A total of 258 records were screened for substantive relevance, resulting in 173 reports deemed worthy of further investigation. The collected documents were then assessed for feasibility, taking into account article type, journal type, and English language. A total of 173 were included in the bibliometric analysis. Given that data updates are performed daily, the literature search was conducted on the same day to maintain data consistency and currency (Figure 1).

Data Analysis

In the data analysis stage, the identified literature was analyzed quantitatively and descriptively. The first stage involved data cleaning and standardization using OpenRefine to reduce duplication, standardize variations in author names, and ensure metadata consistency (OpenRefine, n.d.). Subsequent analysis was performed using Microsoft Excel 2021 (Microsoft Corporation, Redmond, WA, United States). This software was used for initial data processing, table preparation, and descriptive statistical calculations supporting the bibliometric analysis. Next, bibliometric network mapping and visualization were performed using VOSviewer to identify author collaboration patterns, keyword relationships, and the thematic structure of publications. Further analysis was also conducted using the R-based Biblioshiny package to comprehensively explore bibliometric indicators, including publication trends, journal sources, and citation distribution. All these stages

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were carried out systematically to produce accurate, valid, and replicable bibliometric visualizations and analyses.

RESULT

A total of 173 articles were analyzed between 2007 and 2026. The annual distribution shows a gradual growth pattern with a significant acceleration after 2020. In the initial period (2007–2013), the number of publications was relatively low and stable, averaging fewer than 5 per year. An expansionary phase occurred from 2014 to 2019, with a moderate increase in publications.

The most significant spike occurred in the 2020–2025 period, where the number of publications more than doubled compared to the previous phase and peaked in 2025. The decline in 2026 was due to limited indexing time, as the publication year had not yet fully completed at the time of data collection. This pattern shows an exponential growth curve, indicating that community-based health literacy is in the scientific expansion phase (growth stage) and has not yet reached maturity.

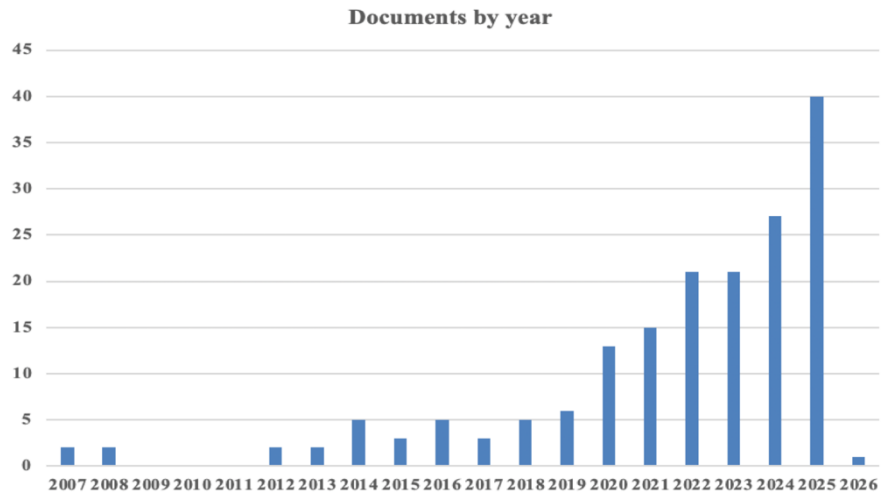

Figure 2. Documents by Year

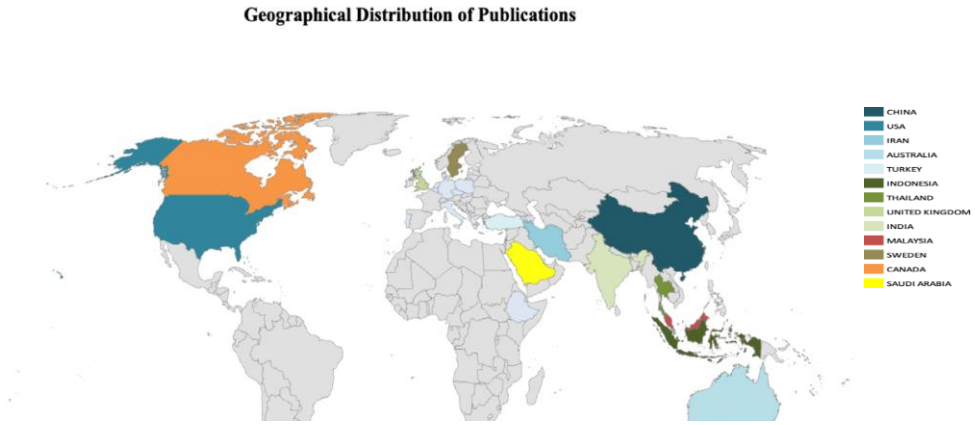

Figure 3. Geographical Distribution of Publications

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Table 1. Distribution of Publications by Country

No	Country	Number of Publications	Percentage (%)
1	China	33	19,08
2	USA	28	16,18
3	Iran	8	4,62
4	Australia	6	3,47
5	Turkey	6	3,47
6	Indonesia	5	2,89
7	Thailand	5	2,89
8	United Kingdom	5	2,89
9	India	4	2,31
10	Malaysia	4	2,31
11	Sweden	4	2,31
12	Canada	3	1,73
13	Saudi Arabia	3	1,73

Based on the Geographical Distribution of Publications data, the 173 analyzed articles show a concentration in a few countries (Figure 3 and Table 1). China ranked first with 33 publications (19.08%), followed by the United States with 28 publications (16.18%). Cumulatively, these two countries contributed 35.26% of the total publications analyzed, indicating a significant concentration of scientific production in two major research centers.

The middle contributor group consisted of Iran (8 publications; 4.62%), Australia and Turkey (6 publications each; 3.47%), and Indonesia, Thailand, and the United Kingdom (5 publications each; 2.89%). Countries with four publications (2.31%) included India, Malaysia, and Sweden, while Canada and Saudi Arabia each contributed three publications (1.73%).

In addition to these countries, several others, such as Belgium, Germany, Greece, Italy, the Netherlands, Poland, Portugal, the Czech Republic, Denmark, Ethiopia, and New Zealand, each contributed 2 publications (1.16%), indicating relatively limited but geographically dispersed participation. This distribution indicates that literature production on community-based health literacy remains concentrated in a few countries with more established research capacities. In contrast, contributions from many other countries are relatively low.

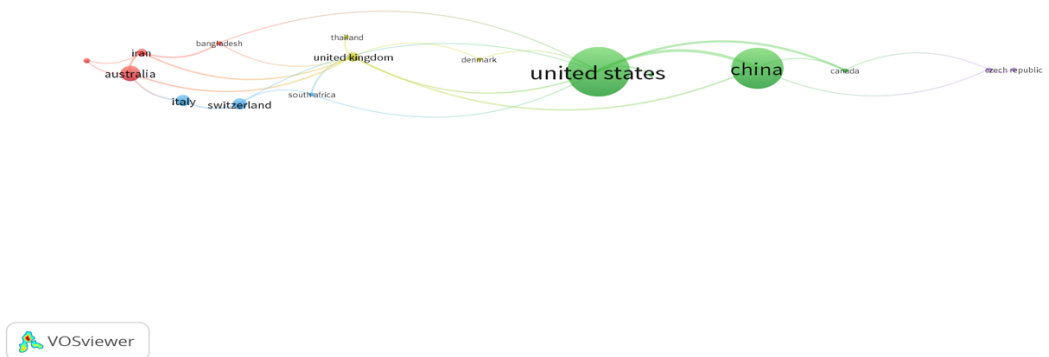

Figure 4. Visualization of the International Collaboration Network

The International Collaboration Network (Figure 4) exhibits a centralized network structure. The two largest nodes are the United States and China, indicating higher publication and international collaboration intensity than other countries. The United States appears to have the highest degree of connectivity (degree centrality), with collaborative relationships connecting

countries such as the United Kingdom, Canada, Australia, Sweden, Italy, Japan, and Germany. This pattern demonstrates the United States' role as a central hub in the community-based health literacy collaboration network.

China also occupies a central position in the network, but its connectivity is more limited and concentrated among a few specific partners. Outside of these two main nodes, most countries form small clusters with relatively low levels of interconnection. This structure suggests that the international collaboration network is not yet fully distributed.

In general, the network visualization exhibits characteristics of a hub-and-spoke model, where a small number of countries serve as hubs of connectivity. In contrast, other countries have more limited connections.

Research Focus

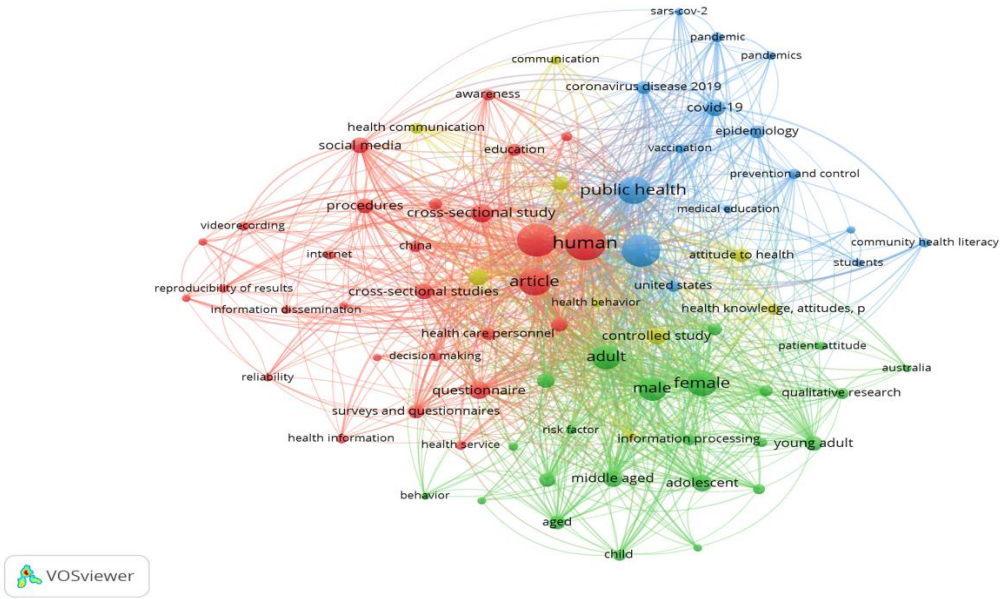

Figure 5. Research Focus

Keyword Co-occurrence Analysis using VOSviewer produced a network with several main thematic clusters (Figure 5). The network structure shows a relatively high density around central nodes such as human, public health, and article, reflecting the population-based and public health-oriented nature of the community-based health literacy literature.

Methodological and health communication terms, including cross-sectional studies, surveys, and questionnaires, information dissemination, and social media, dominate the first cluster (red). The density of connections within this cluster indicates that survey approaches and observational designs are the most frequently used methods in this area of research.

The second cluster (blue) focuses on the pandemic and epidemiological context, with keywords such as COVID-19, pandemic, SARS-CoV-2, vaccination, and prevention and control. The strong interconnections between keywords in this cluster demonstrate the integration of health literacy with public health responses during the pandemic.

The third cluster (green) represents the demographic and behavioral dimensions of health, characterized by terms such as adult, male, female, adolescent, young adult, health knowledge, attitude, and risk factor. The connectivity pattern within this cluster demonstrates a focus on

population characteristics and behavioral determinants as key variables in health literacy studies. The emergence of terms like "community health literacy" and "qualitative research" in the network, although not the largest nodes, indicates a trend toward a more contextual and participatory approach.

Temporal Dynamics of Research Themes

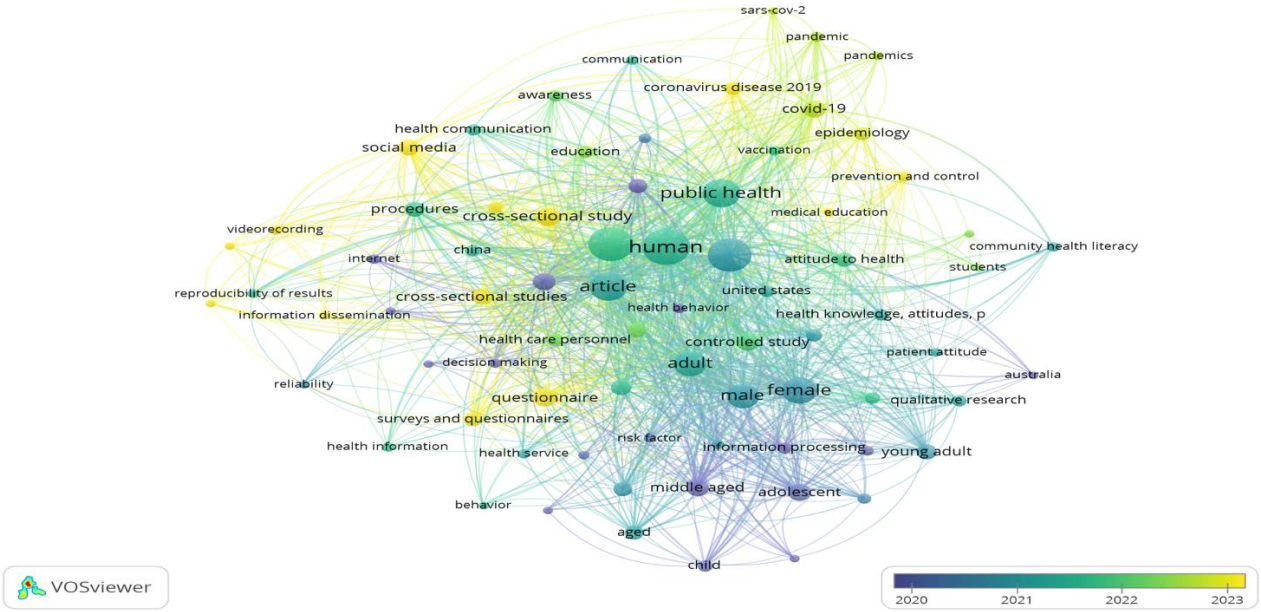

Figure 6. Temporal Dynamics of Research Themes

The temporal dynamics of research themes, as shown in the overlay visualization (Figure 6), reveal the development of community-based health literacy research themes during 2020–2023. In this visualization, blue represents keywords that emerged earlier (around 2020), while yellow indicates more recent themes (2022–2023).

In the early period (2020), dominant keywords included COVID-19, pandemic, epidemiology, and SARS-CoV-2, indicating a strong link between community-based health literacy and the response to the global health crisis. Central nodes, such as human and public health, remained consistent throughout the observation period, indicating the stability of the public health-based conceptual foundation.

Entering the 2021–2022 period, there was a shift towards more applicable themes, such as community health literacy, health knowledge, attitudes to health, vaccination, and prevention and control. In the most recent period (2022–2023), keywords such as social media, health communication, information dissemination, and education appeared more prominently, indicating increased relevance in the latest literature. Methodological themes such as cross-sectional studies, surveys and questionnaires, and controlled studies showed consistency throughout the period, indicating the stability of the research approaches used in this field.

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Citation Trend and Scientific Impact

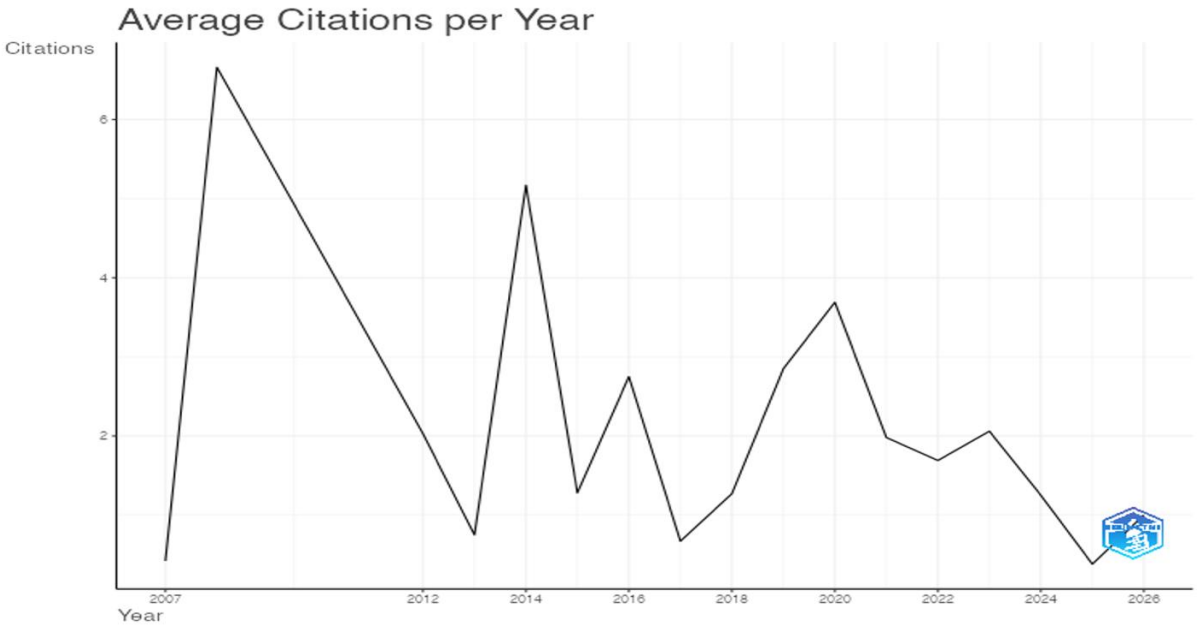

Figure 7. Citation Trend and Scientific Impact

Citation analysis shows variations in the average annual citations of community-based health literacy publications over the period 2007–2026 (Figure X). In the initial phase, average annual citations fluctuated significantly. 2008 recorded the highest average citations (6.66 per year), despite the relatively limited number of documents (N=2). 2014 also showed a relatively high average of citations (5.17 per year), followed by 2020 (3.69 per year).

In the period 2015–2019, the average annual citations ranged from 0.67 to 2.85, indicating a moderate level of scientific impact. Meanwhile, publications in the period 2021–2023 showed an average annual citation between 1.69 and 2.06. In the most recent years (2024–2026), the average citations per year were recorded as lower, namely 1.25 in 2024, 0.38 in 2025, and 1 in 2026. The number of documents in this period was higher than in the initial phase, especially in 2025 (N=40), but citation accumulation remained limited.

DISCUSSION

This study reveals a marked and sustained increase in publications on community-based health literacy, particularly after 2020, indicating a phase of rapid scientific expansion. The timing of this growth strongly coincides with the COVID-19 pandemic, which positioned health literacy as a critical determinant of public response to health risks, vaccination uptake, and adherence to preventive measures. This surge reflects the heightened global recognition of health literacy as both an individual and collective capacity in managing health crises (Okan et al., 2023). However, while publication output has expanded exponentially, this quantitative growth does not necessarily correspond to equivalent advances in theoretical depth, suggesting the need for more critical evaluation of the field's conceptual and methodological development (Belfrage et al., 2024).

The geographic distribution of research highlights a pronounced concentration of knowledge production in a limited number of countries, particularly China and the United States. This pattern reflects broader inequalities in global research capacity, in which countries with stronger funding

systems, infrastructure, and access to international publication platforms dominate scientific output (Onuoha, 2025). Although the participation of middle-income countries such as Indonesia, Iran, Thailand, and Turkey indicates an emerging geographic expansion, their contributions remain relatively limited. The underrepresentation of regions such as Africa and parts of Latin America further underscores disparities in global knowledge production. These imbalances have important implications, as dominant countries may disproportionately shape research agendas, conceptual frameworks, and intervention models, potentially limiting the contextual relevance of findings across diverse settings (Jenkins et al., 2023).

The structure of international collaboration networks further reinforces this asymmetry, revealing a centralized pattern of global knowledge flow. The United States emerges as a key hub with high network centrality, functioning as a major mediator in scientific collaboration. While China demonstrates high publication productivity, its collaborative links appear comparatively less extensive, indicating that research output does not always translate into global network integration. The limited involvement of many developing countries in collaborative networks raises concerns regarding the inclusiveness and representativeness of knowledge production. Such centralization may constrain the incorporation of diverse socio-cultural perspectives, thereby limiting the generalizability and applicability of community-based health literacy models across contexts (Lilimadani, 2025).

Thematic analysis indicates that the field remains dominated by quantitative, cross-sectional, and survey-based methodologies, reflecting a predominantly descriptive and exploratory stage of development. The prominence of pandemic-related themes highlights the research community's responsiveness to urgent global challenges, with health literacy framed as a key factor in mitigating misinformation and enhancing public compliance (Nirwan, 2023). However, this strong focus on crisis-related issues may have limited the exploration of other critical areas, such as non-communicable diseases, structural determinants of health, and long-term community empowerment. Furthermore, the relative absence of longitudinal, interventional, and participatory research designs suggests that the field has yet to fully engage with questions of causality, sustainability, and systemic transformation (Sykes et al., 2025).

Temporal analysis demonstrates a gradual shift from a crisis-oriented focus toward themes of digital health communication and information dissemination, reflecting the evolving nature of health literacy in the digital age. This transition signifies a conceptual expansion from individual cognitive skills to collective capacities for navigating complex information ecosystems (Fitzpatrick et al., 2023). Nevertheless, the persistence of similar methodological approaches over time indicates that thematic diversification has not been accompanied by substantial innovation in research design. Citation patterns further reveal that scientific impact remains concentrated in earlier foundational studies, while more recent publications have not yet achieved comparable influence, partly due to shorter citation windows. Together, these findings suggest that community-based health literacy is in a phase of ongoing epistemic consolidation, requiring greater methodological rigor, theoretical integration, and more inclusive global collaboration to advance toward a mature and globally relevant field (Walujo et al., 2025).

CONCLUSION

This study demonstrates that community-based health literacy research has undergone rapid and sustained growth, particularly since 2020, reflecting a phase of dynamic scientific expansion. However, despite this increase in publication output, knowledge production remains concentrated in a limited number of high-capacity countries and is largely characterized by observational research

designs. Thematic evolution indicates a shift from a predominant focus on the COVID-19 pandemic to broader issues in digital communication and community-based health information management. While the field shows considerable potential for further development, advancing toward a more mature and globally relevant discipline will require deeper theoretical integration, greater methodological innovation, and more inclusive international collaboration.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest that could potentially influence the conduct or results of this research. This research was conducted independently without any commercial pressure or financial relationships that could bias the interpretation of the findings.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

This article is the original work of the author team. During manuscript preparation, the authors used artificial intelligence (AI), such as ChatGPT, to improve grammar, sentence structure, and academic clarity. All scientific content, data analysis, interpretation of results, and final responsibility for the contents of the manuscript rest entirely with the authors. All authors assume full responsibility for the authenticity and scientific integrity of this manuscript and are willing to accept academic consequences for any discrepancies found in this statement.

SOURCE OF FUNDING STATEMENTS

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