

ORIGINAL

Global Trends and Insights in Peer Facilitation Research and Practices in School Settings

Tendencias y perspectivas globales en la investigación y las prácticas de facilitación entre pares en entornos escolares

Soepri Tjahjono Moedji Widodo¹  , Muhammad Nur Wangid¹  , Suwarjo  , Yulia Ayriza¹  

¹Universitas Negeri Yogyakarta. Indonesia.

Cite as: Moedji Widodo ST, Nur Wangid M, Suwarjo S, Ayriza Y. Global Trends and Insights in Peer Facilitation Research and Practices in School Settings. Salud, Ciencia y Tecnología. 2025; 5:2162. <https://doi.org/10.56294/saludcyt20252162>

Submitted: 26-04-2025

Revised: 12-08-2025

Accepted: 20-10-2025

Published: 21-10-2025

Editor: Prof. Dr. William Castillo-González 

Corresponding Author: Soepri Tjahjono Moedji Widodo 

ABSTRACT

Introduction: a peer facilitator is a student appointed to help peers with learning difficulties, usually from a higher-achieving group. This approach benefits both facilitators and participants by enhancing knowledge, skills, and confidence. Peer-led programs improve academic performance, self-concept, and behavior. Research highlights their effectiveness in education and health, emphasizing the need for proper training and support. Peer facilitation has gained attention as an alternative approach in health, education, and social programs. Despite extensive research, gaps remain in its theoretical and methodological foundations.

Method: this study employs bibliometric analysis to explore trends, key themes, and research gaps in peer facilitation from 2014-2024. Using Biblioshiny-R and VOSviewer, it maps academic contributions and emerging interdisciplinary connections. The study involved a bibliometric analysis of 249 publications on the subject listed in the Scopus database from 2014 to 2024. The bibliometric procedure evaluates research performance and progress within an international impact framework, while Biblioshiny-R and VOSviewer visualize overall research trends in peer facilitator.

Results: This study analyzed 249 peer-reviewed articles on peer facilitators from Scopus. Publications grew significantly from 2014 to 2024, peaking in 2024. A three-field plot highlights key references, authors, and topics like mental health and youth development. Bradford's Law identifies BMJ Open and BMC Public Health as core journals. University College London leads institutional contributions. The results of the study show that United State is the country with the most publications related to peer facilitator. Annette W. Burgess and Stuart J. Fairclough are two prominent authors in this field based on the total number of publications and citations. The journal BMJ Open is the journal that has published the most papers on this topic.

Conclusions: this paper is useful to academics, organizations, and policy makers in understanding the general picture of the peer facilitation field and allows future researchers to see where this research began and trace its shift over time. Findings highlight their effectiveness in promoting health awareness, enhancing communication skills, and fostering peer support. Future research should explore students' perspectives and qualitative aspects, such as emotional and social benefits, to deepen understanding of their impact.

Keywords: Bibliometrics; Peer Facilitator; Peer Facilitation; Biblioshiny-R; VOS Viewer.

RESUMEN

Introducción: un facilitador de pares es un estudiante designado para ayudar a sus compañeros con dificultades de aprendizaje, generalmente de un grupo de mayor rendimiento. Este enfoque beneficia tanto a los facilitadores como a los participantes al mejorar el conocimiento, las habilidades y la confianza.

Los programas dirigidos por pares mejoran el rendimiento académico, el autoconcepto y el comportamiento. La investigación destaca su eficacia en la educación y la salud, enfatizando la necesidad de una capacitación y apoyo adecuados. La facilitación entre pares ha ganado atención como un enfoque alternativo en programas de salud, educación y sociales. A pesar de la extensa investigación, siguen existiendo lagunas en sus fundamentos teóricos y metodológicos.

Método: este estudio emplea el análisis bibliométrico para explorar tendencias, temas clave y brechas de investigación en la facilitación entre pares de 2014 a 2024. Usando Biblioshiny-R y VOSviewer, mapea las contribuciones académicas y las conexiones interdisciplinarias emergentes. El estudio consistió en un análisis bibliométrico de 249 publicaciones sobre el tema que figuran en la base de datos Scopus entre 2014 y 2024. El procedimiento bibliométrico evalúa el rendimiento y el progreso de la investigación dentro de un marco de impacto internacional, mientras que Biblioshiny-R y VOSviewer visualizan las tendencias generales de la investigación en el facilitador de pares.

Resultados: este estudio analizó 249 artículos revisados por pares sobre facilitadores de pares de Scopus. Las publicaciones crecieron significativamente de 2014 a 2024, alcanzando su punto máximo en 2024. Una trama de tres campos destaca referencias clave, autores y temas como la salud mental y el desarrollo juvenil. La Ley de Bradford identifica a BMJ Open y BMC Public Health como revistas principales. University College London lidera las contribuciones institucionales. Los resultados del estudio muestran que Estados Unidos es el país con más publicaciones relacionadas con el facilitador entre pares. Annette W. Burgess y Stuart J. Fairclough son dos autores destacados en este campo según el número total de publicaciones y citas. La revista BMJ Open es la revista que más artículos ha publicado sobre este tema.

Conclusiones: este artículo es útil para académicos, organizaciones y formuladores de políticas para comprender el panorama general del campo de la facilitación entre pares y permite a los futuros investigadores ver dónde comenzó esta investigación y rastrear su cambio a lo largo del tiempo. Los hallazgos destacan su eficacia para promover la conciencia sobre la salud, mejorar las habilidades de comunicación y fomentar el apoyo entre pares. La investigación futura debe explorar las perspectivas y los aspectos cualitativos de los estudiantes, como los beneficios emocionales y sociales, para profundizar la comprensión de su impacto.

Palabras clave: Bibliometría; Facilitador de Pares; Facilitación Entre Pares; Biblioshiny-R; Visor VOS.

INTRODUCTION

Peer facilitator refers to students who are selected and trained to support their peers, especially those experiencing learning or behavioral difficulties. They are often chosen from groups with higher achievement or leadership potential and serve as a support system within the school environment.⁽¹⁾ In educational contexts, peer facilitation has been recognized as an effective strategy to enhance both academic and social outcomes. Facilitators gain knowledge, skills, and confidence, while participants benefit from increased engagement, improved attitudes, and reduced behavioral problems.^(2,3,4) This aligns with a social constructivist view of learning, where interaction among peers plays a central role in the learning process.⁽⁵⁾

Beyond academics, peer facilitation has also been applied in school-based health programs. Research shows that peer-led interventions can improve mental health, reduce substance use, and lower rates of violence among adolescents.⁽⁶⁾ Moreover, peer-facilitated health education has, in some cases, been shown to be as effective as adult-led programs.⁽⁷⁾ However, the success of such initiatives depends heavily on adequate training and ongoing support for facilitators.^(8,9)

Despite these promising outcomes, the intellectual development of peer facilitator research remains underexplored. While studies demonstrate the effectiveness of peer facilitation in various domains—education, health, and community development.^(10,11) There has been little effort to systematically map its conceptual structure, key contributors, and thematic evolution. This lack of synthesis limits policymakers, educators, and practitioners from identifying evidence-based strategies, understanding emerging priorities, and designing scalable interventions. Without a clear understanding of how the field has evolved and where it is heading, efforts to integrate peer facilitation into school-based programs risk being fragmented or inconsistent.

To address this gap, this study employs bibliometric analysis to examine the development of peer facilitator research over the last decade. Specifically, it investigates: (1) the growth and distribution of publications in this field, (2) the most influential authors, journals, and countries, (3) patterns of collaboration across researchers and institutions, (4) the intellectual structure and thematic clusters of peer facilitator studies, and (5) the emerging and declining themes that signal future directions.

METHOD

This study employed a bibliometric approach, an analytical method based on bibliographic data, to examine the development of peer facilitator research, explore the relationships between research topics, identify

widely studied aspects, and suggest directions for future research expansion.⁽¹²⁾ The term “bibliometrics,” first introduced by Pritchard in 1969 as a replacement for the earlier term “statistical bibliography,” has since evolved into a robust and technically advanced method. This evolution has paralleled the exponential growth of academic knowledge and publication outputs.⁽¹³⁾

To analyze and visualize the data, the Biblioshiny-R and VOSviewer software application is used. Biblioshiny-R is Java-based software developed to conduct functional combination research using the bibliometrix package and the web application used in the shiny package environment in R Studio.⁽¹⁴⁾ Biblioshiny-R makes it possible to complete the entire process of scientific literature analysis and data processing. Biblioshiny captures the core Bibliometrix code and creates an online data analysis framework.⁽¹⁵⁾ Using the Biblioshiny-R package, this research makes it possible to conduct relevant bibliometric and visual analysis based on an interactive web interface.⁽¹⁶⁾

The data for this study was collected using the keyword “peer facilitator,” searched within the article title, abstract, and keyword categories. The search was restricted to the period from 2014 to 2024, resulting in the identification of 249 relevant documents. These documents provide insights into the evolution of peer facilitation research, including its applications in health education, mental health, and community development, as well as emerging interdisciplinary connections.

To analyze and visualize the data, this study utilized the Biblioshiny-R and VOSviewer software applications. Biblioshiny-R is a web-based software built on the bibliometrix package and the Shiny package environment in R Studio.

Figure 1 the bibliometric analysis workflow, beginning with data collection from Scopus and conversion into R-readable formats, followed by descriptive analysis, normalization, and matrix creation. The process continues through network and data reduction analyses, leading to mapping and visualization outputs such as collaboration maps, thematic maps, and three-field plots.

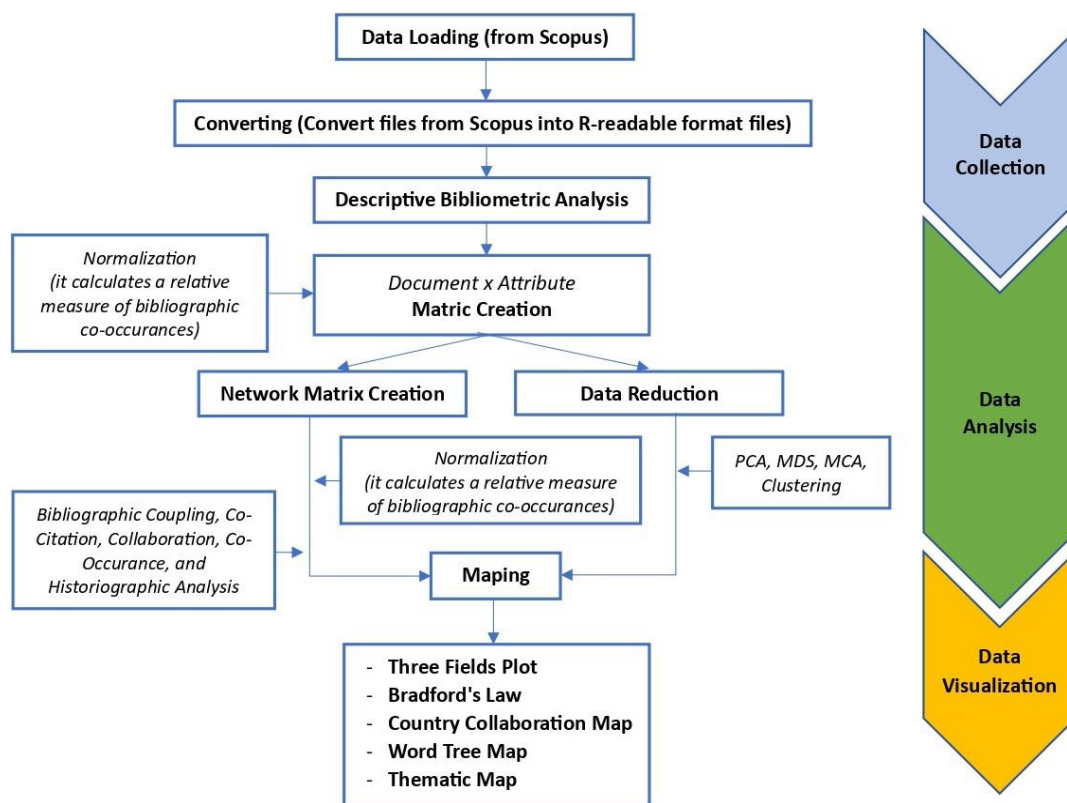


Figure 1. Bibliometrix and science mapping workflow

RESULTS

Annual Scientific Production

This study analyzed 249 peer-reviewed articles from the Scopus database related to peer facilitators. Figure 2 demonstrates the yearly distribution of publications from 2014 to 2024. The trend highlights a significant increase in scholarly interest in peer facilitation over the past decade. From 2014 to 2016, research output was relatively low and fluctuating, with the number of documents rising to 15 in 2015, followed by a decline in 2016. However, starting in 2017, there has been a consistent upward trajectory, suggesting an increasing acknowledgment of peer facilitators' role in educational, health, and community-based programs.

The year 2021 marked a turning point, with the number of publications nearly doubling from 22 in 2020 to approximately 37 documents. This peak reflects heightened global interest and increased implementation of peer facilitator approaches, particularly in response to emerging challenges such as mental health crises, youth development, and education gaps during the COVID-19 pandemic. Although a slight decline occurred in 2023, the numbers rebounded in 2024, reaching the highest record of 41 publications.

The upward trend over this period underscores the growing importance of peer facilitators in various domains. The rising number of studies highlights ongoing efforts to evaluate the effectiveness, frameworks, and scalability of peer-led programs. Bibliometric analyses provide valuable insights into the intellectual growth and knowledge structure within a research field. The results of this study emphasize the need for further exploration into peer facilitators' impact, particularly in cross-disciplinary contexts.

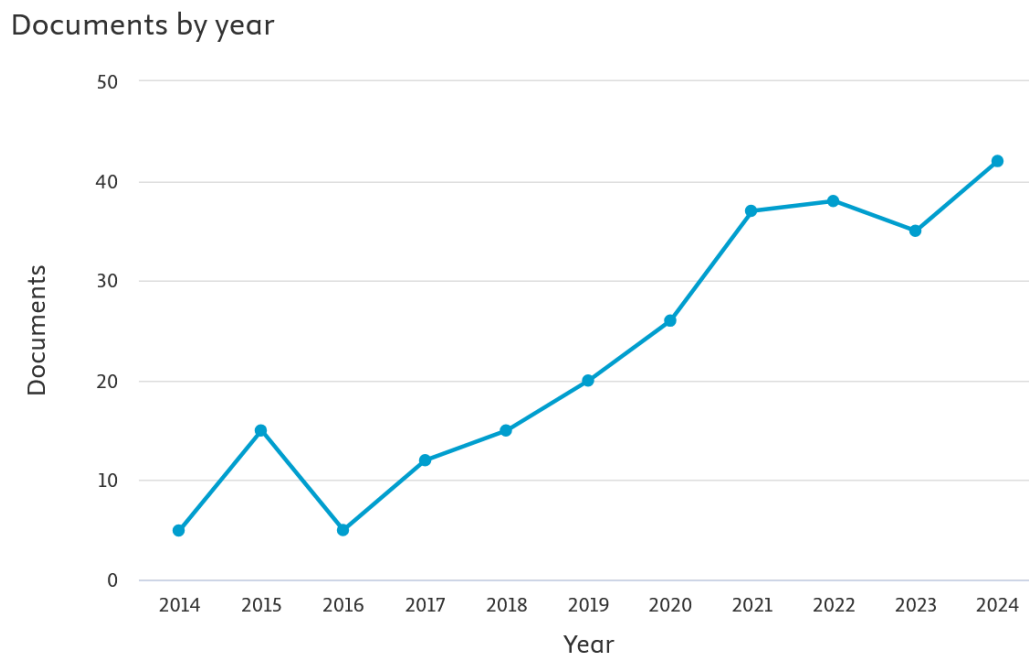


Figure 2. Number of Publications per Year

Three Fields Plot

In conducting bibliometric analysis, the three-field plot approach can be applied to observe the development of research components by analyzing the interactions among three interconnected elements in the study. These elements are typically divided into three positions: the left element, the middle element, and the right element, where the interactions flow from the left to the middle and from the middle to the right.⁽¹⁷⁾ The size of each rectangle in the plot represents the number of publications or connections associated with the specific element. Depending on research objectives, the elements can include components such as authors, affiliations, countries, keywords, titles, abstracts, sources, and cited references.

The three-field plot in the figure provides a visual representation of the relationships between key references (CR), contributing authors (AU), and dominant keywords (DE) within peer facilitator research. The first element (CR) highlights influential references, such as those authored by Braun and Clarke, which are foundational in thematic analysis within psychology. These references connect with various authors who utilize them in their research, demonstrating their significant impact on the field.

The middle element (AU) focuses on the contributing authors who play a central role in peer facilitator studies. Authors such as Fairclough, Knowles, and Rose-Clarke are identified as key contributors whose work bridges influential references with critical research topics. The size of each rectangle represents the volume of their publications, indicating the extent of their influence. This element reflects the collaborative nature of research, where authors are connected to multiple themes and references. The final element (DE) highlights dominant research topics and keywords that are frequently explored in peer facilitator studies. Topics such as “mental health, physical activity, adolescents,” and “qualitative” approaches appear prominently, reflecting the focus on health promotion and youth development. The connections between authors and keywords demonstrate the evolving research landscape and the importance of addressing key issues within peer facilitator interventions.

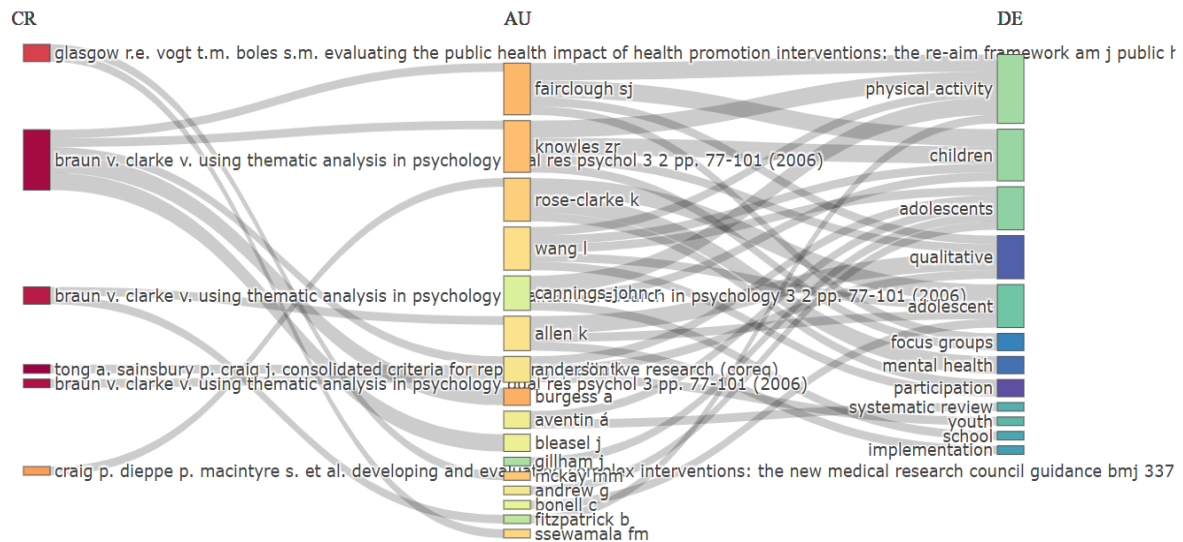


Figure 3. Three Fields Plot (Sources, Authors, Keywords)

DISCUSSION

Author's Analysis

Core sources in research using Bradford's Law, which identifies the most influential journals by visualizing their rank based on article frequency. The graph shows a steep decline in the number of articles contributed by each source as it progresses from left to right. The gray shaded area highlights the "Core Sources," which are journals that publish the most articles in a specific research field. These sources are essential for scholars as they represent the most productive and impactful publication outlets. Journals such as BMJ Open, BMC Public Health, and BMC Medical Education appear prominently at the left side, reflecting their dominant role in contributing articles to this field.

The y-axis represents the number of articles published by each journal, while the x-axis ranks the journals logarithmically. The sharp drop-off in the line indicates that a small number of journals, referred to as "core sources," account for the majority of the publications. For example, journals like BMJ Open and BMC Public Health contribute significantly more articles compared to other sources, as seen in their elevated position on the graph. Moving to the right, the article count per journal decreases, indicating that the majority of journals publish far fewer articles, even though they may still contribute to the overall body of knowledge.

The visualization aligns with Bradford's Law, which states that a small number of journals (core sources) publish a disproportionately large volume of articles, while many other journals produce fewer publications. This information is valuable for researchers seeking the most relevant and influential journals in their field. Identifying these core sources helps scholars prioritize where to search for research or where to publish their work to maximize its impact. Journals on the left, such as BMJ Open and BMC Public Health, are critical for advancing knowledge in the research domain.

Source	h index	g index	m index	TC	NP	PY start
BMC Medical Education	7	9	0,7	126	9	2015
BMJ Open	7	11	0,875	142	18	2017
BMC Public Health	6	11	0,6	169	11	2015
Mededportal : The Journal Of Teaching And Learning Resources	5	7	0,625	61	10	2017
Academic Medicine	4	6	0,4	125	6	2015
Frontiers In Psychology	4	4	0,8	50	4	2020
International Journal Of Environmental Research And Public Health	4	8	0,5	66	8	2017
Trials	4	4	0,364	80	4	2014
Plos One	3	4	0,429	73	4	2018
Advances In Medical Education And Practice	2	2	0,2	8	3	2015

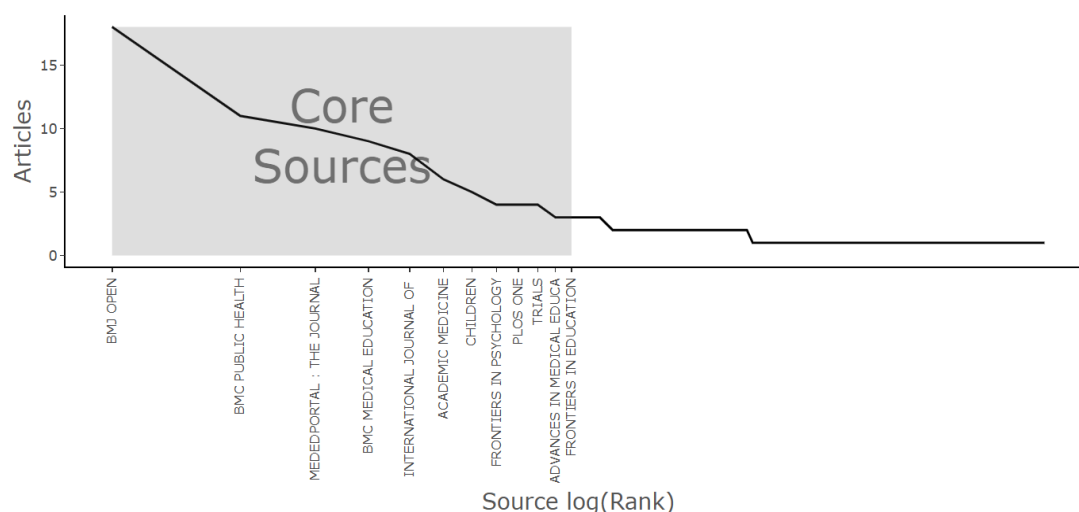


Figure 4. Core Sources by Bradford's Law

Author's Analysis

The table 5 highlights the performance metrics of notable authors, including their h-index, g-index, m-index, total citations (TC), number of papers (NP), and the year of their first publication in the dataset (PY_start). The h-index reflects both productivity and impact, with all listed authors achieving a value between 2 and 3. Authors such as Burgess A, Fairclough SJ, and Knowles ZR have an h-index of 3, meaning they each have 3 publications cited at least 3 times. Similarly, the g-index, which emphasizes cumulative citations, also remains at 3 for most authors, indicating that their top publications are accumulating significant recognition. Authors like Blease J and Andrew G display substantial total citations (67 and 73, respectively), suggesting their work has had widespread influence despite a relatively small number of papers. The m-index, which measures the consistency of an author's research impact over time, provides further insights into research progression. Authors such as Anderson K and Aventin Á, with m-index scores of 0,5, demonstrate rapid research impact relative to their first publications in 2021, reflecting promising early contributions to their fields. Conversely, authors like Fairclough SJ and Knowles ZR, with m-index values of 0,273, have shown steady progress since starting their contributions in 2014, indicating sustained but slower growth. The m-index helps differentiate between early-career researchers with accelerating influence and established researchers with steady productivity over time. Authors such as Ssewamala FM and Mckay MM, who started publishing more recently in 2018, maintain balanced productivity with m-index scores of 0,429, showcasing consistent research development.

The PY_start column explains when each author began publishing in the analyzed period, offering context to their research timelines. Authors like Burgess A, Andrew G, and BMC Public Health contributors began contributing in 2015, while newer contributors such as Anderson K and Aventin Á started in 2021, reflecting emerging voices in the field. The varying start years allow for an understanding of an author's career stage, with longer timelines for authors like Fairclough SJ and Knowles ZR providing opportunities to accumulate citations over time. In contrast, newer researchers have less time for citation accrual but demonstrate rapid impact through higher m-index values.

Table 2. Authors Local Impact						
Author	h index	g index	m index	TC	NP	PY start
Burgess A	3	3	0,3	72	3	2015
Fairclough SJ	3	3	0,273	52	3	2014
Knowles ZR	3	3	0,273	52	3	2014
Mckay MM	3	3	0,429	38	3	2018
Ssewamala FM	3	3	0,429	38	3	2018
Allen K	2	2	0,25	25	2	2017
Anderson K	2	2	0,5	15	2	2021
Andrew G	2	2	0,2	73	2	2015
Aventin Á	2	2	0,5	35	2	2021
Bleasel J	2	2	0,333	67	2	2019

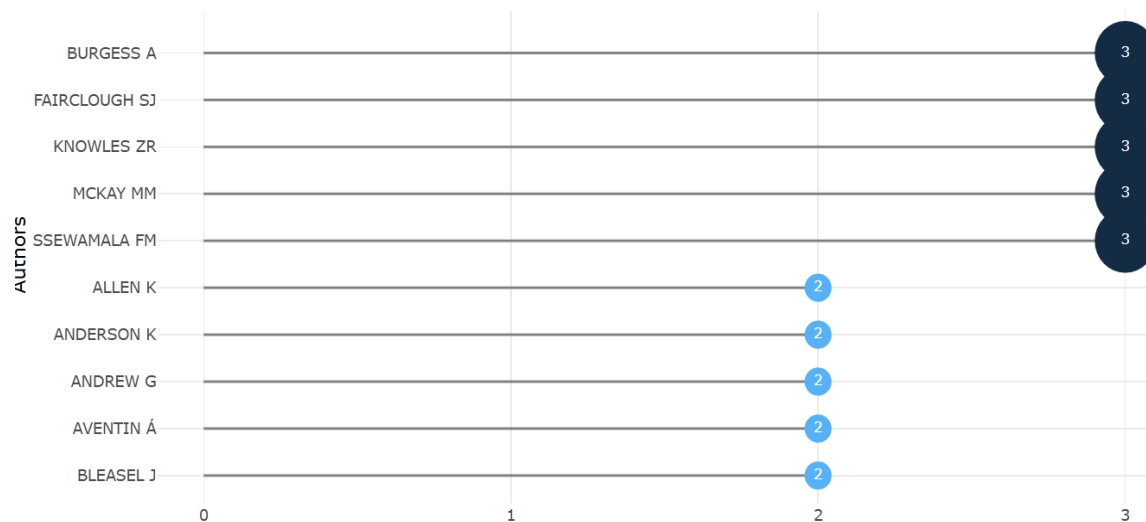


Figure 5. Authors' Production over Time

Affiliations Analysis

This figure 6 displays a bubble chart showing the number of articles published by various academic institutions, reflecting their contributions to the research output. At the top of the chart is University College London with 22 articles, making it the most prominent contributor among the listed institutions. Following this, Monash University and The University of Sydney each produced 17 articles, showing a comparable level of research activity.

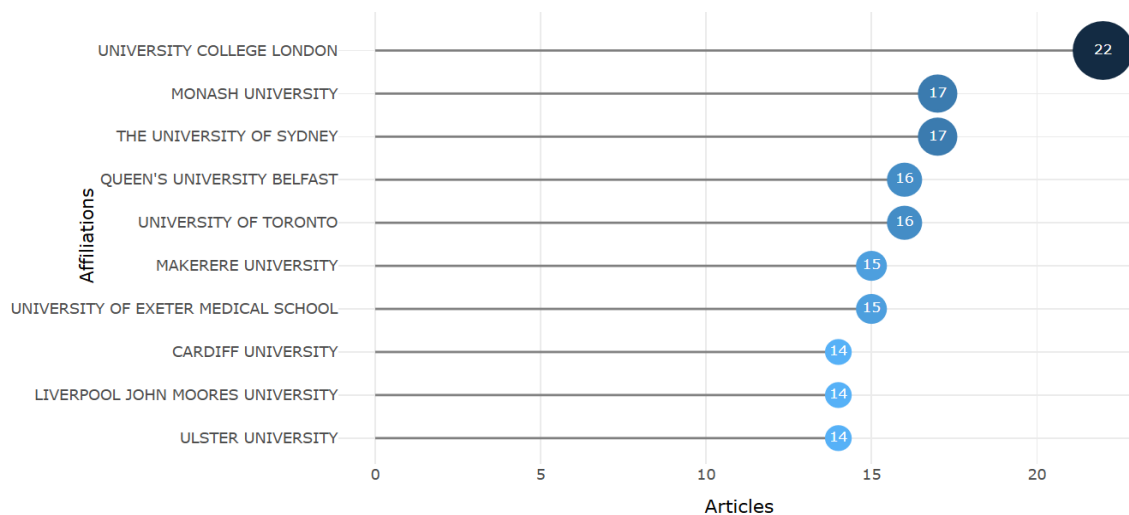


Figure 6. Most Relevant Affiliations

Countries Analysis

This table presents the frequency of research contributions by country, showing a clear distinction between leading and emerging contributors. At the top, the United Kingdom (UK) and the United States (USA) dominate the list with 325 and 324 contributions, respectively, highlighting their significant influence in academic research. Australia follows with 147 contributions, showcasing its strong position in global research output. Other prominent contributors include Canada with 81 contributions and South Africa with 36, reflecting their established research systems and growing impact. In the mid-tier, countries such as Uganda (32), China (26), the Netherlands (25), Norway (25), and Sweden (25) demonstrate consistent contributions, solidifying their role in supporting global research. Notably, European countries like Spain (20), Ireland (18), and Italy (16) maintain steady participation, while countries such as India (17) and Kenya (17) signify growing contributions from regions in Asia and Africa. Emerging contributors, including Germany (15), New Zealand (14), and Portugal (13), also show noteworthy involvement, underscoring diverse global participation in research activities. Toward the lower end of the table, countries such as Ethiopia (12), Malaysia (12), and France, Japan, and Thailand (each with 11 contributions) highlight meaningful yet smaller research outputs. Countries like Brazil (10), Chile (10),

and Pakistan (10) demonstrate growing efforts to engage in research on an international scale. Botswana (8), Poland (8), and South Korea (8) contribute modestly but remain relevant in the broader research ecosystem.

Country	Freq	Country	Freq	Country	Freq
UK	325	Spain	20	France	11
USA	324	Ireland	18	Japan	11
Australia	147	India	17	Thailand	11
Canada	81	Kenya	17	Brazil	10
South Africa	36	Italy	16	Chile	10
Uganda	32	Germany	15	Pakistan	10
China	26	New Zealand	14	Botswana	8
Netherlands	25	Portugal	13	Poland	8
Norway	25	Ethiopia	12	South Korea	8
Sweden	25	Malaysia	12	Finland	7

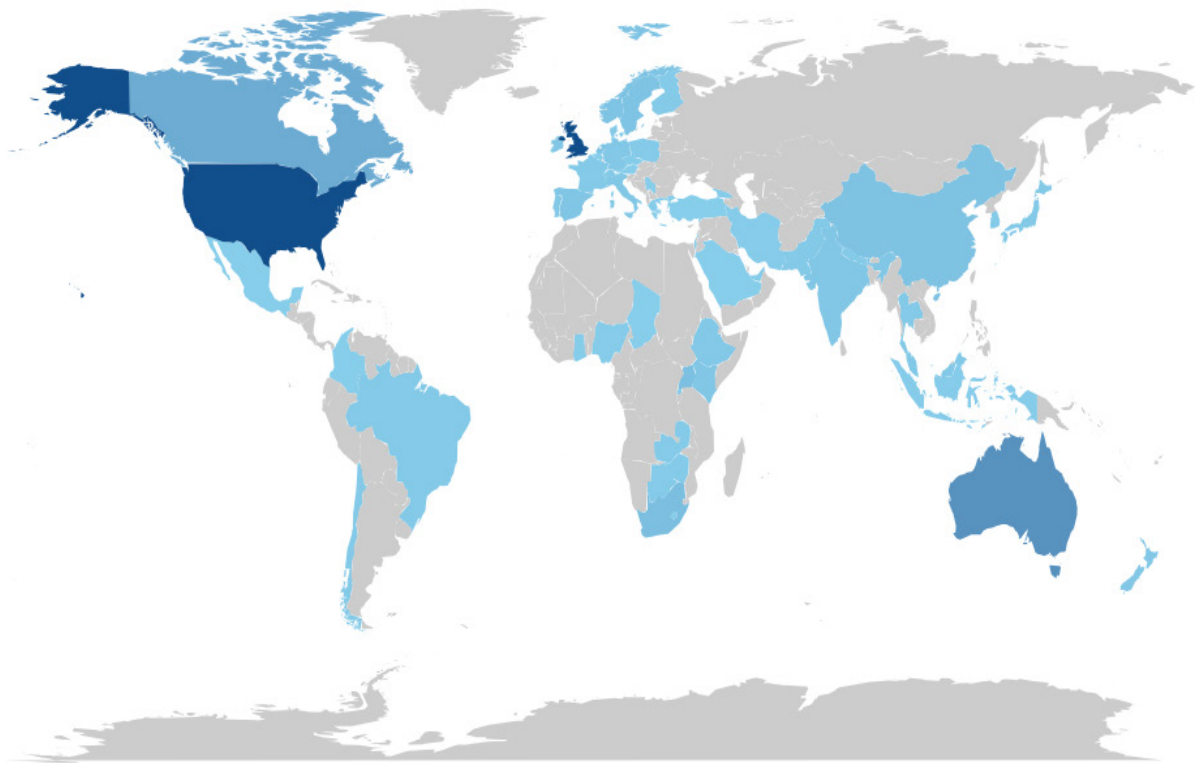


Figure 7. Country Collaboration Map

The line figure 7 shows the growth in the number of scientific articles produced by Australia, Canada, South Africa, the United Kingdom, and the USA from 2014 to 2024. The United Kingdom and USA consistently lead in article production, showing significant and steady increases, especially after 2019, with both reaching over 300 articles by 2024. Australia shows gradual but steady growth, with a notable increase after 2019, surpassing 140 articles by 2024. Meanwhile, Canada displays moderate growth, experiencing a sharper increase between 2021 and 2023, reaching around 80 articles. South Africa remains the lowest contributor, but it also shows slow yet consistent progress, increasing steadily throughout the decade. This graph highlights the dominant role of the USA and UK in scientific output while showing emerging contributions from other countries like Australia and Canada.

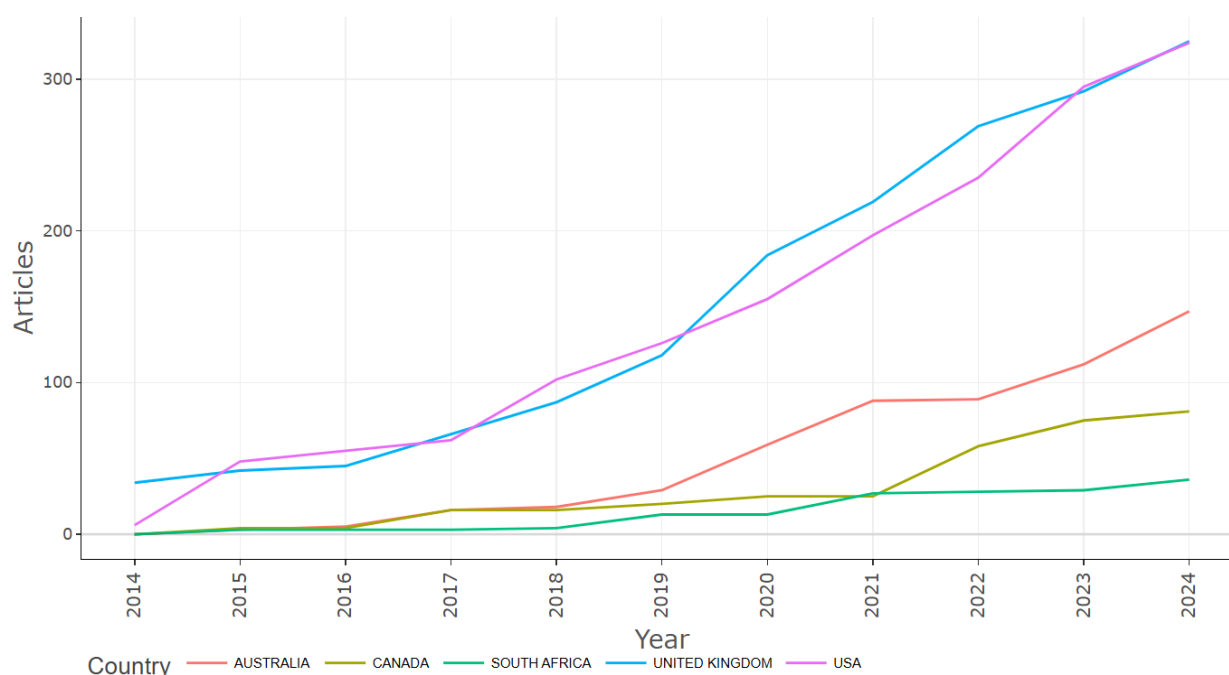


Figure 8. Countries Production over Time

The global distribution of scientific production, with countries like the United States, United Kingdom, and Australia leading in output, represented by the darkest shades of blue. These nations benefit from well-established research infrastructures, significant funding, and a strong academic culture that drives their high contribution to scientific publications. Medium-blue countries, including China, Canada, Germany, and India, reflect their growing prominence in global research through investments in education and international collaboration. Meanwhile, regions with lighter shades, such as parts of Africa, Central Asia, and smaller nations, show lower scientific outputs, often due to challenges like limited funding and resources.

Documents Analysis

The most globally cited research documents, showcasing their impact and influence within their respective fields. The highest total citation is attributed Nabukeera-Barungi et al. whose study on adherence to antiretroviral therapy and care retention among HIV-positive adolescents in Uganda garnered 124 citations, reflecting its critical relevance to HIV care in resource-limited settings. Lu W follows closely with a systematic review on barriers and facilitators to mental health service use among racial/ethnic minority adolescents, achieving 96 citations in a short period. Its annual citation rate of 24,00 and a normalized TC of 7,01 indicate its significant impact in addressing disparities in mental health care access. Similarly, Moyano N explores homophobic bullying in schools, with 82 citations and a strong annual citation rate of 16,40, emphasizing its importance in understanding bullying dynamics and consequences in school environments.

Several other studies also demonstrate significant scholarly contributions. Allen P reviews health policy implementation measures, receiving 75 citations and a normalized TC of 4,95, underscoring its role in improving health policy outcomes. Hennessy S focuses on technology use for teacher professional development in low- and middle-income countries, securing 70 citations with an annual citation rate of 23,33, the second-highest in the list. This work emphasizes the growing relevance of technology-enhanced education in under-resourced regions. Additionally, Zanoni BC highlights how adolescent-friendly HIV services in South Africa address retention barriers, with 61 citations, showing the practical impact of tailored interventions in improving healthcare outcomes for vulnerable populations.

Other notable contributions include Fleming GM, whose facilitated peer mentoring program for faculty development secured 78 citations, showcasing its role in professional networking. Similarly, Leventhal KS and Strauss M focus on adolescent wellbeing and barriers to HIV counseling in South Africa, with 67 and 61 citations, respectively. Their work highlights the importance of psychosocial support and accessible care for youth. Lastly, Perman S examines school-based vaccination programs, achieving 60 citations and emphasizing the importance of well-organized public health interventions in high-income countries.

Table 4. Most Global Cited Documents

Author	Year	Title	Journal	Total Citations	TC per Year	Normalized TC
Nabukeera-Barungi N	2015	Adherence to antiretroviral therapy and retention in care for adolescents living with HIV from 10 districts in Uganda	BMC Infect Dis	124	12,4	3,63
Lu W	2021	Barriers and Facilitators for Mental Health Service Use Among Racial/Ethnic Minority Adolescents: A Systematic Review of Literature	Front Public Health	96	24,0	7,01
Moyano N	2020	Homophobic bullying at schools: A systematic review of research, prevalence, school-related predictors and consequences	Aggression Violent Behav	82	16,4	5,41
Fleming GM	2015	A Facilitated Peer Mentoring Program for Junior Faculty to Promote Professional Development and Peer Networking	Acad Med	78	7,8	2,29
Allen P	2020	Quantitative measures of health policy implementation determinants and outcomes: a systematic review	Implement Sci	75	15,0	4,95
Hennessy S	2022	Technology Use for Teacher Professional Development in Low- and Middle-Income Countries: A systematic review	Comput Educ Open	70	23,33	10,47
Leventhal KS	2015	Building psychosocial assets and wellbeing among adolescent girls: A randomized controlled trial	J Adolesc	67	6,7	1,96
Zanoni BC	2019	Barriers to Retention in Care are Overcome by Adolescent-Friendly Services for Adolescents Living with HIV in South Africa: A Qualitative Analysis	AIDS Behav	61	10,17	2,75
Strauss M	2015	A qualitative analysis of the barriers and facilitators of HIV counselling and testing perceived by adolescents in South Africa	BMC Health Serv Res	61	6,1	1,79
Perman S	2017	School-based vaccination programmes: a systematic review of the evidence on organisation and delivery in high income countries	BMC Public Health	60	7,5	2,77

Words Analysis

The word cloud visually captures the significance of words by adjusting their sizes based on frequency, with larger words indicating higher prominence. While the arrangement appears random, the most frequently occurring words are typically placed at the center for greater emphasis. In this context, figure 9 highlights peer facilitator as a key term, signifying its central role and importance within research on peer-based interventions and facilitation.

The data provided showcases a list of terms along with their frequencies, representing the central themes or topics often encountered in research. The highest frequency terms, such as “female” (181), “human” (176), and “adolescent” (162), indicate a strong focus on research involving human populations, particularly females and adolescents. These terms suggest that many studies are centered on demographic groups like youth and women, reflecting their importance in fields like health, education, and social sciences. Additionally, “male” (156) and “child” (141) show that research covers both genders and younger age groups, emphasizing studies involving human development across different life stages.

Several terms reflect the methods and contexts of research. For instance, “qualitative research” (92) indicates the frequent use of qualitative approaches to gather in-depth insights, while “controlled study” (53) highlights structured and systematic experimental research. Terms like “peer group” (81) and “curriculum” (54) suggest studies related to group dynamics, education, and curriculum development, likely focusing on schools and structured learning environments. Furthermore, “exercise” (62), “physical activity” (34), and

“psychology” (47) emphasize a focus on health, physical well-being, and psychological aspects, particularly in the context of adolescents and education.



Figure 9. Word Cloud

Lastly, the data points to a significant role for educational and institutional settings, as indicated by terms like “school” (48) and “education” (36). These findings imply that much of the research explores themes of development, education systems, and physical or psychological interventions in young populations. The lower-frequency terms, such as “human experiment” (32) and “young adult” (51), further reflect that experiments involving human subjects and young adults are also relevant, though not as prominent as other themes. In summary, the data highlights a broad focus on human development, gender, education, and health-related research, with an emphasis on qualitative methods and school-based studies.

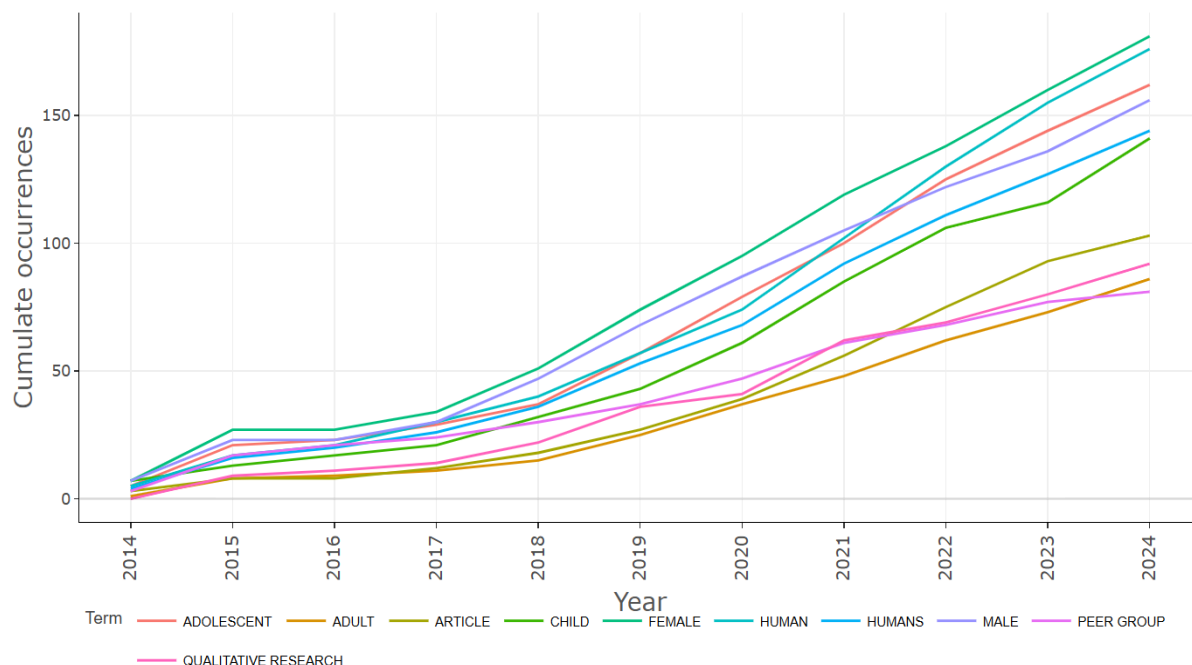


Figure 10. Words Growth

The Words Growth Data shows the annual progression of frequently used terms in research, demonstrating an overall upward trend across all terms between 2014 and 2024. In particular, the terms female, human, adolescent, and male exhibit the highest growth, indicating their increasing prominence in research themes over the past decade. For example, female grew from 7 occurrences in 2014 to 181 in 2024, marking a substantial

increase, likely reflecting a growing focus on gender-related studies and the inclusion of females in research. Similarly, terms like adolescent (by 162) and male (by 156) also display consistent growth, showcasing the importance of age and gender-focused studies. The terms humans, child, and adult also experience steady growth, with humans rising from 4 occurrences in 2014 to 144 in 2024, and “child” increasing from 7 to 141.

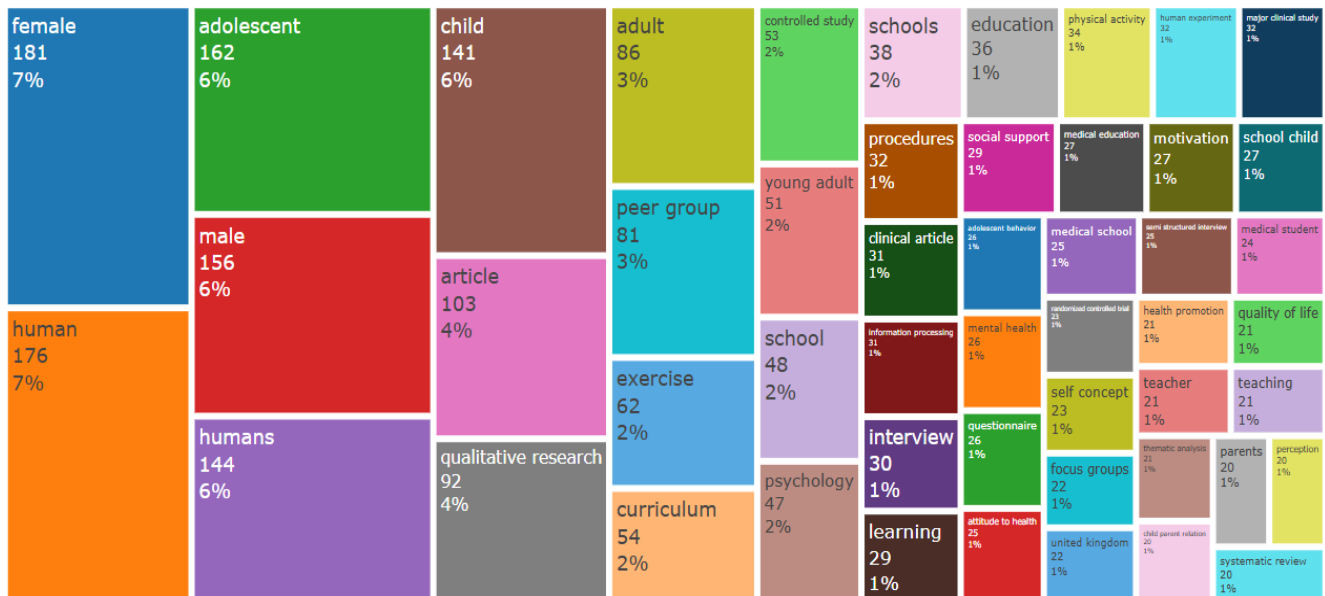


Figure 11. Word Tree Map

The keywords peer facilitator and peer group are the most dominant words that frequently appear in the research. This prominence is expected as the study focuses on peer facilitation programs, where the role of peer facilitators is central to achieving outcomes in educational, health, and social interventions. The concept of peer facilitation emphasizes the importance of peers in delivering support, guidance, and information effectively within a group of equals, fostering mutual learning and engagement. Peer facilitation draws on theories of social learning and experiential education, where individuals learn better from relatable and shared experiences with peers.⁽¹⁸⁾ Research shows that peer facilitators play a critical role in improving participation, understanding, and retention of information, particularly among adolescents and young adults in educational and community-based settings.⁽¹⁹⁾

The increasing recognition of peer facilitation programs has led to their adoption across diverse fields, including education, health promotion, and community development. Effective training and structured programs are essential to ensure peer facilitators are equipped with the skills, knowledge, and confidence to fulfill their roles effectively. Peer facilitation, therefore, represents a cost-effective and impactful strategy for fostering engagement and learning while addressing challenges faced by professional-led interventions.⁽²⁰⁾

Network Approach

Co-occurrence analysis using VOSviewer is valuable for mapping and analyzing relationships between frequently appearing keywords in scientific literature, providing insights into patterns and research trends within specific fields.^(21,22,23,24) This method is particularly effective in identifying clusters and understanding the interconnections between concepts, highlighting areas of research focus and gaps. Figure 12 illustrates an overview of studies on peer facilitators, where the variations in color, box size, font size, and line thickness represent the strength of relationships between keywords, thereby revealing dominant themes and emerging trends in the field.⁽²⁵⁾

Researchers examining peer facilitators worldwide have identified six main clusters, marked by red, green, dark blue, yellow, purple, and light blue colors. The first cluster (red) highlights the role of peer facilitators in educational settings, focusing on their impact on academic support and collaborative learning environments. The second cluster (green) relates to peer facilitators and mental health programs, showing their involvement in promoting mental well-being and emotional support. The third cluster (dark blue) emphasizes the connection between peer facilitators, community engagement, and leadership development. The fourth cluster (yellow) explores the role of peer facilitators in health promotion, particularly in areas like physical activity, HIV prevention, and substance abuse awareness. The fifth cluster (purple) links peer facilitators with youth empowerment and social inclusion programs. Finally, the sixth cluster (light blue) connects peer facilitators to skill-building initiatives, such as communication, conflict resolution, and career readiness programs.

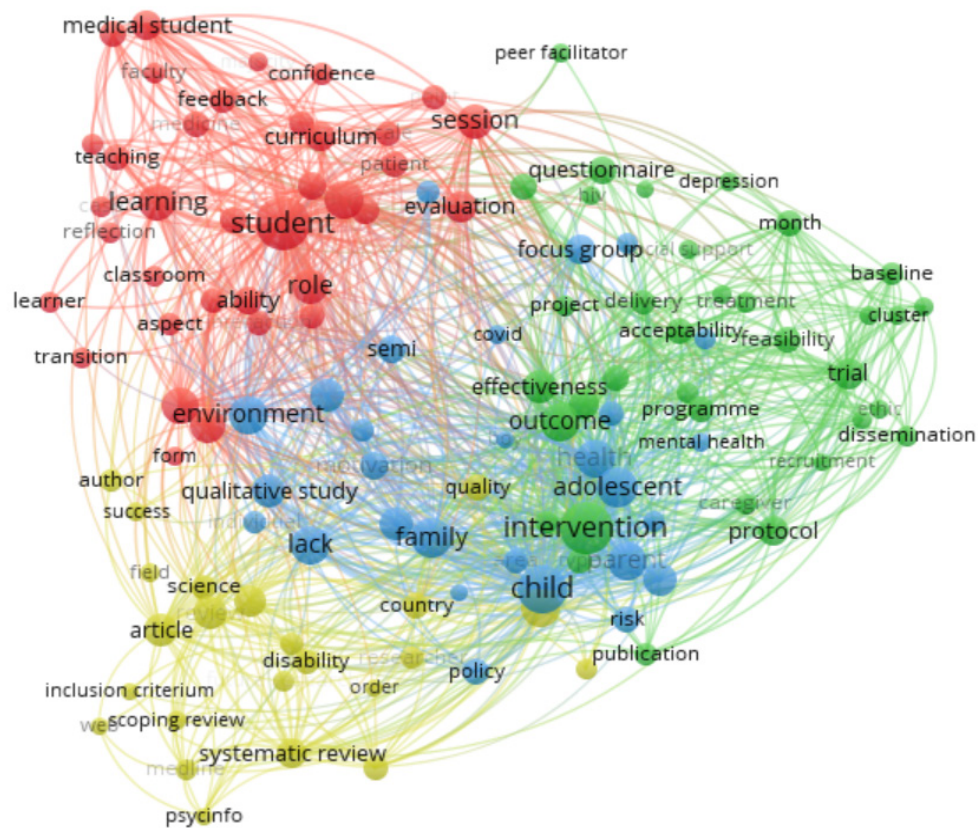


Figure 12. Keywords Co-occurrences

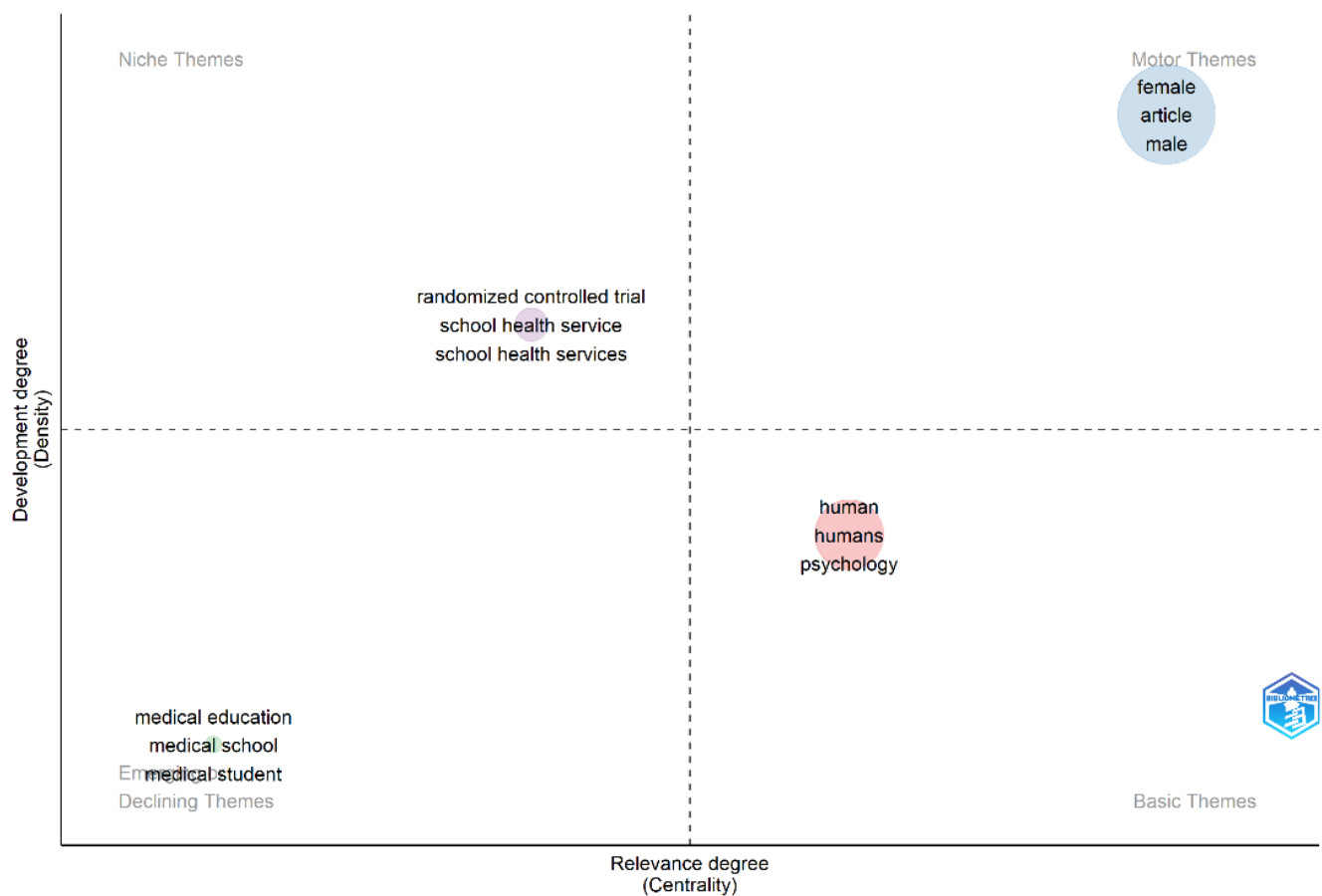


Figure 13. Thematic Maps

Key themes such as education, mental health, youth empowerment, leadership, and health promotion appear as dominant topics in peer facilitator research (figure 12). The first cluster (red) is evident in research like Topping study on Trends in Peer Learning, which demonstrates that peer facilitators enhance learning outcomes through collaborative approaches and foster supportive peer networks in academic settings. Cluster two (green) is aligned with Rickwood et al. work on mental health interventions, which shows how peer facilitators play a critical role in providing informal support and reducing stigma associated with seeking help for mental health challenges.

The third cluster (dark blue) focuses on leadership and community programs, reflected in Fleming et al. research, which highlights peer mentoring programs that promote professional development and leadership skills. In cluster four (yellow), the role of peer facilitators in health promotion is supported by Visser et al. who explored how peer-led HIV prevention initiatives empower communities through information dissemination and behavioral interventions. Cluster five (purple) emphasizes youth empowerment, as seen in Leventhal et al. research, which underscores the role of peer facilitators in building psychosocial assets among adolescents. The sixth cluster (light blue) aligns with initiatives focused on skills development, such as Allen et al. work on quantitative measures for improving implementation outcomes in peer-led programs.

In bibliometric analysis, the visualization of four quadrants on the Thematic Map can help to understand the structure and dynamics of certain fields of study. It can assist researchers in identifying interesting topics for further research or topics that need more attention in the development of fields of study. These results were obtained from a semi-automatic algorithm by reviewing all reference keywords to the research object. Therefore, the results can capture deeper variations.

a. Human: this quadrant primarily covers terms related to human behavior, education, psychology, and health-related issues. It includes important terms such as human experiment, psychology, curriculum, learning, and attitude. There is a strong focus on educational methodologies and interpersonal skills, especially concerning human relations and behavior in diverse settings, such as schools and work environments.

b. Female: the female quadrant predominantly features terms associated with women and their health, such as adolescent, child, young adult, mental health, and physical activity. Research is focused on gender-related health issues, school health, mental well-being, and social support. Various research methodologies like qualitative research, focus groups, and thematic analysis are also evident, indicating a focus on in-depth studies and interventions related to females.

c. Medical Education: this quadrant emphasizes the academic and practical training of medical professionals. Key terms include medical education, medical student, problem-based learning, clinical competence, and medical school. Studies here focus on improving medical education, curriculum development, and the training of future healthcare professionals to ensure better patient care and clinical decision-making.

d. Randomized Controlled Trial: the fourth quadrant highlights research methodologies such as randomized controlled trial (RCT), focusing on the effectiveness of interventions in health and education. Terms such as quality of life, school health service, and adolescent behavior suggest a focus on evidence-based approaches to healthcare and educational interventions, particularly those evaluating the impact of health services and educational programs on children and adolescents.

Implications

This research contributes to the field of health education by providing insights into the peer facilitator model and its effectiveness. It encourages educators, health professionals, and policymakers to consider peer facilitators as a viable and valuable component of health education programs. Practically, this study underscores the importance of training and supporting peer facilitators to ensure that they can effectively deliver health education and serve as positive role models. Additionally, it highlights the potential for peer facilitators to create a more inclusive and supportive school environment, which can lead to better health outcomes and improved student well-being.

Limitations

This bibliometric study has several limitations. The analysis used only the Scopus database, thus missing publications from other sources. The study period was limited to 2014-2024, thus providing insufficient historical context. The quantitative approach emphasized the number of publications, citations, and networks, without delving deeply into the quality of content or student experiences. Furthermore, the use of the keyword “peer facilitator” potentially overlooked other relevant terms, and the results were dominated by developed countries, thus limiting global generalization.

RECOMMENDATIONS

Recommended that future studies include feedback from students to better understand the peer facilitator's impact from both perspectives. Lastly, while the study analyzed quantitative outcomes (e.g., improved health behaviors), future research should also investigate qualitative aspects, such as the emotional and social benefits of having peer facilitators in health education programs.

CONCLUSIONS

This study confirms the important role of peer facilitators as a substitute for peer educators and peer counselors in health programs in secondary schools. A bibliometric analysis of 249 publications from 44 countries (2014-2024) shows a growing trend in research and global recognition of the effectiveness of peer facilitators. Their key roles are seen in increasing health awareness, building trust among peers, and strengthening communication, leadership, and social support skills among students. These results provide theoretical contributions by enriching the peer facilitator model in health education, as well as practical contributions by recommending more participatory program implementation in schools. Future research should expand qualitative studies, incorporate cross-cultural contexts, and explore more structured training strategies to optimize the role of peer facilitators in promoting healthy lifestyles among adolescents.

BIBLIOGRAPHIC REFERENCES

1. Vogel G, Fresko B, Wertheim C. Peer tutoring for college students with learning disabilities. *J Learn Disabil.* 2007;40(6):485-91. doi:10.1177/00222194070400060101.
2. Tobias AK, Myrick RD. A peer facilitator-led intervention with middle school problem-behavior students. *Prof Sch Couns.* 1999;3(1):27-33.
3. Clouder DL, Davies B, Sams M, McFarland L. "Understanding where you're coming from": discovering an [inter]professional identity through becoming a peer facilitator. *J Interprof Care.* 2012;26(6):459-64. doi:10.3109/13561820.2012.706335.
4. Thomson S, Michelson D, Day C. From parent to "peer facilitator": a qualitative study of a peer-led parenting programme. *Child Care Health Dev.* 2014;41(1):76-83. doi:10.1111/cch.12132.
5. Ashwin P. Peer facilitation and how it contributes to the development of a more social view of learning. *Res Post-Compuls Educ.* 2003;8(1):5-18. doi:10.1080/1359674030020013.
6. Rose-Clarke K, Bentley A, Marston C, Prost A. Peer-facilitated community-based interventions for adolescent health in low- and middle-income countries: a systematic review. *PLoS One.* 2019;14(1):e0210468. doi:10.1371/journal.pone.0210468.
7. Mellanby AR, Rees JB, Tripp JH. Peer-led and adult-led school health education: a critical review of available comparative research. *Health Educ Res.* 2000;15(5):533-45.
8. Frantz J. A peer-led approach to promoting health education in schools: the views of peers. *S Afr J Educ.* 2015;35(1):1-7. doi:10.15700/201503070006.
9. Petosa RL, Smith LH. Peer mentoring for health behavior change: a systematic review. *Am J Health Educ.* 2014;45(6):351-7. doi:10.1080/19325037.2014.945670.
10. Lee MK, Hannafin MJ. A design framework for enhancing engagement in student-centered learning. *Educ Technol Res Dev.* 2016;64(4):707-34. doi:10.1007/s11423-016-9440-8.
11. Wallerstein N, Duran B. Theoretical, historical, and practice roots of CBPR. In: Minkler M, Wallerstein N, editors. *Community-based participatory research for health.* 3rd ed. San Francisco: Jossey-Bass; 2008. p. 25-46. doi: 10.13140/RG.2.2.34282.72648
12. Paltrinieri A, Hassan MK, Bahoo S, Khan A. A bibliometric review of sukuk literature. *Int Rev Econ Finance.* 2020;67:35-49. doi:10.1016/j.iref.2019.04.004.
13. Sardi A, Astuti I. Aplikasi R Biblioshiny dalam mengungkap tren riset pembelajaran berbasis ICT: kajian scientometrik. *EduNaturalia.* 2021;2(1):1-6.

14. Huang JH, Duan XY, He FF, Wang GJ, Hu XY. A historical review and bibliometric analysis of research on weak measurement research over the past decades based on Biblioshiny. arXiv. 2021. <http://arxiv.org/abs/2108.11375>
15. Aria M, Cuccurullo C. Bibliometrix: an R-tool for comprehensive science mapping analysis. J Informetr. 2017;11(4):959-75. doi:10.1016/j.joi.2017.08.007.
16. Mougenot B, Doussoulin JP. Conceptual evolution of the bioeconomy: a bibliometric analysis. Environ Dev Sustain. 2022;24(1):1031-47. doi:10.1007/s10668-021-01481-2.
17. Srisusilawati P, Rusydiana AS, Sanrego YD, Tubastuvi N. Biblioshiny R application on Islamic microfinance research. DigitalCommons@University of Nebraska - Lincoln. 2021.
18. Topping KJ. Trends in peer learning. Educ Psychol. 2005;25(6):631-45. doi:10.1080/01443410500345172.
19. Campbell C, MacPhail C. Peer education, gender and the development of critical consciousness: participatory HIV prevention by South African youth. Soc Sci Med. 2002;55(2):331-45. doi:10.1016/S0277-9536(01)00289-1.
20. Campbell WK, Bonacci AM, Shelton J, Exline JJ, Bushman BJ. Psychological entitlement: interpersonal consequences and validation of a self-report measure. J Pers Assess. 2004;83(1):29-45. doi:10.1207/s15327752jpa8301_04.
21. Krauskopf E. A bibliometric analysis of the Journal of Infection and Public Health: 2008-2016. J Infect Public Health. 2018;11(2):224-9. doi:10.1016/j.jiph.2017.12.011.
22. Perianes-Rodriguez, A; Waltman, L; van Eck, NJ. (2016). Constructing bibliometric networks: A comparison between full and fractional counting. Journal of Informetrics, 10 (4), p. 1178-1195. DOI: <http://dx.doi.org/10.1016/j.joi.2016.10.006>.
23. Van Eck NJ, Waltman L. Visualizing bibliometric networks. In: Ding Y, Rousseau R, Wolfram D, editors. Measuring scholarly impact. Cham: Springer; 2014. p. 285-320. doi:10.1007/978-3-319-10377-8.
24. Van Eck NJ, Waltman L. Software survey: VOSviewer, a computer program for bibliometric mapping. Scientometrics. 2010;84(2):523-38. doi:10.1007/s11192-009-0146-3.
25. Sweileh WM, Al-Jabi SW, AbuTaha AS, Zyoud SH, Anayah FMA, Sawalha AF. Bibliometric analysis of worldwide scientific literature in mobile health: 2006-2016. BMC Med Inform Decis Mak. 2017;17(1):1-12. doi:10.1186/s12911-017-0476-7.

FINANCING

No financing.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Soepri Tjahjono Moedji Widodo, Muhammad Nur Wangid, Suwarjo, Yulia Ayriza.

Data curation: Soepri Tjahjono Moedji Widodo, Muhammad Nur Wangid, Suwarjo, Yulia Ayriza.

Formal analysis: Soepri Tjahjono Moedji Widodo, Muhammad Nur Wangid, Suwarjo, Yulia Ayriza.

Drafting - original draft: Soepri Tjahjono Moedji Widodo, Muhammad Nur Wangid, Suwarjo, Yulia Ayriza.

Writing - proofreading and editing: Soepri Tjahjono Moedji Widodo, Muhammad Nur Wangid, Suwarjo, Yulia Ayriza.