Continent-Wise Analysis of Research Productivity in Child Psychology : A Scientometric Study

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Abstract: *This study aims to examine the evolution and growth of child psychology research, as evidenced by publications in the Web of Science online database between 1989 and 2025. There are seven continents, but we have only listed six of them here because the last continent, Antarctica, has not contributed anything to this area's publishing. Among these 126 nations, China generated 381 (29.44%) articles, ranking first on the Asian continent. Japan, India, and Iran have published over 100 documents on this topic. The United Kingdom created 1253 (11.07%) articles, ranking first in the European continent. Russia and Spain published approximately 400 documents in this region. The USA created 2399 (80.86%), the highest of all North American countries, contributing 2967 in total. This could be due to the impact of new and recent technologies and trends that were heavily used in the USA and adopted by other countries, such as Canada and Mexico.*

Keywords: Child psychology, Scientometric, Activity index, Vos viewer, Web of Science

INTRODUCTION

The field of child psychology studies children's psychological processes, especially how they differ from those of adults, how they grow from infancy to the end of adolescence, and how they differ from one another. The subject is frequently clubbed alongside infancy, maturity, and aging under the umbrella of developmental psychology. Child studies are a relatively new scientific subject with a strong empirical foundation. In 1891, G. Stanley Hall, an American educational psychologist, founded the Pedagogical Seminary, a monthly journal dedicated to child psychology and pedagogy. The early twentieth century saw the introduction of IQ tests and the formation of child guidance clinics, which helped define the area of child psychology. Several renowned twentieth-century psychologists, like Sigmund Freud, Melanie Klein, and Freud's daughter, Anna Freud, approached child development primarily from a psychoanalytic perspective. Swiss psychologist Jean Piaget has had perhaps the largest direct effect on current child psychology. Piaget established a hypothesis on how children learn to comprehend through direct observation and interaction. He detailed the numerous phases of early learning and the ways in which children see themselves and their surroundings at each level of learning. Although everyone wants their child to grow up healthy, it can be challenging to determine whether a young child's behaviour is indicative of an aberration or a normal growth stage.

OBJECTIVES

The main aim of current study are as follows:

· Examine the increase in child psychology research production from 1989 to 2025.

· Identify publishing distribution by continent and nation.

· Determine country-specific global citation scores, local citation scores, and h-index.

REVIEW OF LITERATURE

Asha, B. (2021) the study uses bibliometric analysis to investigate worldwide library research trends from 1989 to 2019. North America led with 1,521 publications (34.24%), followed by the United States (1, 265) and Europe (1,509). Asia provided 1,005 publications, with China accounting for the highest number (515), followed by Japan and India. Africa had only 105 publications, led by South Africa, and South America had 90 publications, led by Brazil. Australia and New Zealand jointly published 212 publications, with Australia taking the lead. Research output increased dramatically after 2010,

peaking from 2014 to 2018. The USA remains the largest donor, followed by China and the United Kingdom, showing significant technical developments in library patterns Srulinathi,M., et al.(2013) The study analyzes Green Computing research from 1956 to 2011 using Web of Science data, highlighting global publication trends. Europe leads with 40.87% of the research output, followed by North America (32.37%) and Asia (18.26%), with the USA ranking first in terms of publications and citations. Germany, France, Italy, and Japan follow, with India in the 10th position. North America dominated citation impact, with the USA having the highest h-index and g-index. Japan leads in Asia, Australia in Oceania, and Brazil in South America, while Africa has the lowest outputs. Although research has steadily increased, more contributions from underrepresented regions are needed. Gunaseelan.S (2022) This study examines Limnology research productivity from 1989 to 2020 using Activity Index (AI) and Priority Index (PI) values. North America, Europe, and Africa contributed the most, whereas Oceania showed fluctuating AI and PI values. The highest publication count was in 2020 (93 papers, 341 citations), with peak activity in 1993 and the lowest in 2011. Data were sourced from the Web of Science database and analysed using descriptive statistics. The AI measures the research output of each continent relative to global contributions. This study highlights North America's dominance and the need for broader global participation. Despite some variations, the Web of Science includes only peer-reviewed journals, ensuring research quality.

MATERIAL AND METHODS

Information was collected between 1989 and 2025 from the Web of Science database. The number of bibliographic entries for the contributions was approximately 8994. The discipline of child psychology has advanced significantly over the past 37 years. HistCite and VOSviewer software were used to gather and process 8994 records to fulfil the study's objectives. This study aimed to evaluate child psychology-related research issues. This method is analytical and enhances empirical validity through the use of statistical techniques.

ANALYSING AND INTERPRETING DATA

Table-1:continent wise Research output of Child Psychology

Rank	Continents	Contributing Countries	No. of Records	%	TLCS	TGCS
1	Europe	48	5335	48.94	1152	118568
2	North America	13	2967	27.22	1075	116729
3	Asia	28	1294	11.87	133	15965
4	South America	11	642	5.89	51	3705
5	Australia	3	508	4.66	152	14812
6	Africa	23	156	1.43	11	2257
Total		126	10902	100	2574	272036

The analysis of child psychology research output by continent shows in Table -1 that Europe leads with 5,335 records (48.94% of the total), the highest TGCS (118,568),

and the most contributing countries (48), reflecting its strong academic infrastructure. North America followed with 2,967 records (27.22%) and a high TGCS (116,729), largely driven by the United States. Asia, with 1,294 records (11.87%), has a growing research presence, although its TGCS (15,965) remains significantly lower. South America and Australia contributed 642 (5.89%) and 508 (4.66%) records, respectively, with Australia showing a relatively higher TGCS (14,812) than South America (3,705). Africa ranked last, contributing only 156 records (1.43%) and a TGCS of 2,257, highlighting limited research output. Overall, child psychology research is dominated by Europe and North America, while other regions, particularly Africa and parts of Asia, show lower engagement, indicating disparities in research development and funding

Table-2: Child psychology Research Output in European Countries

S. No	Countries	Records	TLCS	TGCS	5335%	8994%
1	UK	1253	453	48487	23.49	13.93
2	Russia	456	77	796	8.55	5.07
3	Spain	450	65	3716	8.43	5.00
4	Germany	389	123	13476	7.29	4.33
5	Unknown	371	98	7672	6.95	4.12
6	Italy	323	42	6275	6.05	3.59
7	France	250	26	4262	4.69	2.78
8	Netherlands	237	68	7467	4.44	2.64
9	Sweden	154	44	5379	2.89	1.71
10	Turkey	130	16	861	2.44	1.45
11	Switzerland	127	41	4822	2.38	1.41
12	Poland	112	9	825	2.09	1.25
13	Portugal	100	11	730	1.87	1.11
14	Norway	94	8	1255	1.76	1.05
15	Ireland	90	14	3047	1.69	1.00
16	Belgium	88	11	2581	1.65	0.98
17	Romania	82	1	445	1.54	0.91
18	Ukraine	67	2	50	1.26	0.74
19	Denmark	66	5	808	1.24	0.73
20	Austria	64	12	1055	1.19	0.71
21	Finland	62	9	1545	1.16	0.69
22	Greece	53	4	899	0.99	0.59
23	Turkiye	46	2	81	0.86	0.51
24	Czech Republic	44	0	468	0.82	0.49
25	Croatia	27	1	172	0.51	0.30
26	Slovakia	26	3	85	0.49	0.29
27	Hungary	25	2	527	0.47	0.28
28	Serbia	22	1	64	0.41	0.24
29	Bulgaria	17	0	105	0.32	0.19
30	Slovenia	16	0	111	0.29	0.18
31	Cyprus	15	0	104	0.28	0.17
32	Kazakhstan	14	0	19	0.26	0.16
33	Lithuania	10	0	74	0.19	0.11
34	Luxembourg	8	1	116	0.15	0.09
35	Iceland	7	2	36	0.13	0.08
36	Estonia	5	0	23	0.09	0.06
37	Latvia	5	1	19	0.09	0.06
38	Bosnia & Herceg	4	0	6	0.08	0.04
39	Malta	4	0	43	0.08	0.04
40	North Macedonia	4	0	40	0.08	0.04
41	Albania	3	0	2	0.06	0.03
42	Azerbaijan	3	0	1	0.06	0.03
43	Belarus	3	0	1	0.06	0.03
44	Georgia	3	0	1	0.06	0.03
45	Kosovo	2	0	4	0.04	0.02
46	Moldova	2	0	1	0.04	0.02
47	Monaco	1	0	4	0.02	0.01
48	Montenegro	1	0	8	0.02	0.01
Total		5335	1152	118568	100	59.32

Table 2 reveals that the output of child psychology research in European nations demonstrates notable variation among countries. The United Kingdom led the way with 1,253 records, boasting the highest total local citation score (TLCS) of 453 and a total global citation score (TGCS) of 48,487, accounting for 23.49% of the overall research output. Following these are Russia, Spain, Germany, and Italy, although their contributions are significantly smaller. Curiously, the "Unknown" category occupies the fifth position, indicating records that have not been classified. While countries in Western Europe, such as France, the Netherlands, and Sweden, provide moderate contributions, Eastern European countries, such as Romania, Ukraine, and Bulgaria, exhibit relatively lower research outputs. Smaller nations, including Luxembourg, Iceland, and Estonia, contributed very little, with only a few research records. The research output comprised 5,335 publications, resulting in a total global citation impact of 118,568.

Table 3 – Child psychology Research Output by North American Countries

S. No	Country	Records	TLCS	TGCS	2967%	8994%
1	USA	2399	874	96270	80.86	26.7
2	Canada	462	199	20057	15.57	5.1
3	Mexico	66	1	186	2/22	0.7
4	Costa Rica	13	1	27	0.44	0.1
5	Cuba	13	0	34	0.44	0.1
6	Guatemala	4	0	5	0.13	0
7	Jamaica	3	0	19	0.10	0
8	Panama	2	0	0	0.07	0
9	Barbados	1	0	1	0.03	0
10	Dominica	1	0	102	0.03	0
11	El Salvador	1	0	7	0.03	0
12	Grenada	1	0	4	0.03	0
13	Honduras	1	0	17	0.03	0
	Total	2967	1075	116729	100	32.7

Table 3 shows that the United States dominates North American child psychology research output, accounting for 2,399 records, 874 TLCS, and 96,270 TGCS, or 80.86% of the overall research output. Canada follows with 462 records, substantially fewer than the United States, but still having a considerable impact with 20,057 TGCS. Mexico ranked third with 66 records but received few citations. The remaining North American countries, including Costa Rica, Cuba, and Guatemala, contributed modestly, with research outputs in the single digits. Some countries, such as Panama and Barbados, have records with few or no citations. The overall research output for North America was 2,967 papers, with a total TGCS of 116,729. The USA and Canada are the leading contributors, reflecting their robust research infrastructure. Mexico and other Latin American countries have had a modest influence on this subject.

The considerable research gap indicates variations in funding, academic advancement and institutional agendas across the region.

Table 4 – Child psychology Research Output by Asian Countries

S. No	Country	Records	TLCS	TGCS	% of 1294	% of 8994
1	Peoples R China	381	35	3956	29.44	4.2
2	India	164	17	2734	12.67	1.8
3	Iran	127	6	827	9.81	1.4
4	Japan	107	36	2606	8.27	1.2
5	Israel	77	17	2043	5.95	0.9
6	Malaysia	73	3	431	5.64	0.8
7	Indonesia	61	1	189	4.71	0.7
8	South Korea	50	3	322	3.86	0.6
9	Saudi Arabia	43	2	345	3.32	0.5
10	Singapore	33	1	724	2.55	0.4
11	Pakistan	30	3	350	2.32	0.3
12	Taiwan	24	3	347	1.85	0.3
13	U Arab Emirates	18	3	152	1.39	0.2
14	Philippines	14	0	58	1.08	0.2
15	Vietnam	14	0	105	1.08	0.2
16	Jordan	12	0	169	0.93	0.1
17	Bangladesh	11	0	162	0.01	0.1
18	Thailand	10	0	151	0.08	0.1
19	Kuwait	7	1	68	0.54	0.1
20	Lebanon	8	0	45	0.62	0.1
21	Iraq	5	0	23	0.39	0.1
22	Oman	5	0	7	0.39	0.1
23	Qatar	5	0	8	0.39	0.1
24	Nepal	4	2	91	0.31	0
25	Sri Lanka	4	0	8	0.31	0
26	Cambodia	3	0	8	0.23	0
27	Palestine	3	0	36	0.23	0
28	Uzbekistan	1	0	0	0.08	0
	Total	1294	133	15965	100	14.5

Table 4 reveals that China leads the Asian child psychology research output, accounting for 381 records, 35 TLCS, and 3,956 TGCS, or 29.44% of the overall output. India ranked second with 164 records and 2,734 TGCS, while Iran, Japan, and Israel made substantial contributions. Malaysia, Indonesia, and South Korea have intermediate research production but a lower citation impact. Pakistan, Saudi Arabia, and Singapore have made minor yet.

Significant contributions were made. Many Asian countries, including the Philippines, Vietnam and Thailand, have a low research presence. Asia's total research output was 1,294 papers with a TGCS of 15,965. Discrepancies in research productivity reflect regional inequalities in academic infrastructure, financing, and research agendas.

Table 5 – child psychology Research Output by South American Countries

S. No	Country	Records	TLCS	TGCS	% of 642	% of 8994
1	Brazil	348	23	1653	54.21	3.9
2	Colombia	111	1	204	17.29	1.2
3	Argentina	73	8	702	11.37	0.8
4	Chile	54	16	1037	8.41	0.6
5	Peru	20	1	36	3.12	0.2
6	Ecuador	17	0	28	2.65	0.2
7	Venezuela	8	0	12	1.25	0.1
8	Uruguay	7	1	3	1.09	0.1
9	Paraguay	2	0	0	0.31	0
10	Aruba	1	1	5	0.16	0
11	Suriname	1	0	25	0.16	0
	TOTAL	642	51	3705	100	7.1

Brazil dominates South America's child psychology research output, accounting for 348 records, as shown in Table 5. 23 TLCS and 1,653 TGCS (54.21% of the total). Colombia followed with 111 records but had little citation impact. Argentina and Chile both made considerable contributions, with Chile having the highest TLCS (16) after Brazil. Peru, Ecuador, and Venezuela have lower research outputs with fewer citations. Uruguay, Paraguay, Aruba, and Suriname contributed little, with some records lacking citations. South America's total research output stands at 642 papers, with a TGCS of 3,705. The findings show that Brazil has a substantial research presence, whereas other countries contribute less, reflecting differences in academic development and financing across the continent.

Table 6– Child psychology Research Output by Australian Countries

S. No	Country	Records	TLCS	TGCS	% of 508	% of 8994
1	Australia	430	143	12021	84.65	4.8
2	New Zealand	77	9	2756	15.16	0.9
3	Fiji	1	0	35	0.20	0
	Total	508	152	14812	100	5.7

Table-6 shows that Australia dominates child psychology research output in the Australian region, accounting for 430 records, 143 TLCS, and 12,021 TGCS, or 84.65% of the total. New Zealand followed with 77 records and 2,756 TGCS, indicating a considerable impact despite fewer publications. Fiji had only one record with a small contribution. The total research output for the region was 508 papers, with a TGCS of 14,812. Australia's substantial research presence stems from its well-established university infrastructure and funding sources. New Zealand also plays an important role, whereas other countries in the region make little or no contributions. This demonstrates a disproportionate concentration of research activities in wealthy countries in the region.

Table 7 – Child psychology Research Output by African Countries

S. No	Country	Records	Percentage	TLCS	TGCS	% of 79	% of 8994
2	Nigeria	16	0.2	1	120	20.25	0.2
3	Egypt	11	0.1	0	43	13.92	0.1
4	Ethiopia	6	0.1	0	22	7.6	0.1
5	Kenya	6	0.1	0	115	7.6	0.1
6	Ghana	5	0.1	0	35	6.33	0.1
7	Uganda	5	0.1	2	48	6.33	0.1
8	Morocco	4	0	0	28	5.06	0
9	Rwanda	3	0	0	25	3.79	0
10	Tanzania	3	0	0	8	3.79	0
11	Tunisia	3	0	0	0	3.79	0
12	Zambia	3	0	1	18	3.79	0
13	Cameroon	2	0	0	7	2.53	0
14	Sudan	2	0	0	1	2.53	0
15	Zimbabwe	2	0	0	12	2.53	0
16	Botswana	1	0	0	1	1,27	0
17	Burkina Faso	1	0	0	34	1.27	0
18	DEM REP Congo	1	0	0	1	1.27	0
19	Lesotho	1	0	0	3	1.27	0
20	Liberia	1	0	0	0	1.27	0
21	Mozambique	1	0	0	3	1.27	0
22	Namibia	1	0	0	0	1.27	0
23	Senegal	1	0	0	0	1.27	0
	Total	79	1.6	11	2257	100	1.6

Table-7 shows that child psychology research output in Africa is relatively low, with 79 publications and a TGCS of 2,257, accounting for only 1.6% of global research in this discipline. Nigeria leads with 16 records, followed by Egypt (11), Ethiopia (6), and Kenya (6), although the citation impact is minor. Uganda has the greatest TLCS (2) among these countries, whereas several others, such as Tunisia and Sudan, lack local citations. Most African nations contributed only one or two publications, indicating a significant research gap. The poor research output reflects limited academic infrastructure, funding, and attention to child psychology. Despite Africa's large population, its contribution to global child-psychology research is minimal. Increased investment and collaboration may boost the region's research impact in the future.

Table- 8 H index and Activity index for Top 15 Countries in child psychology Research

S. No	Country	Records	Activity index	H-index	TGCS
1	USA	2399	26.7	129	96270
2	UK	1253	13.9	94	48487
3	Canada	463	5.1	63	20060
4	Russia	456	5.1	12	796
5	Spain	450	5.0	28	3716
6	Australia	430	4.8	52	12021
7	Germany	389	4.3	51	13476
8	Peoples R China	381	4.2	29	3956
9	Brazil	348	3.9	20	1653
10	Italy	323	3.6	35	6275
11	France	250	2.8	32	4262
12	Netherlands	237	2.6	42	7467
13	India	164	1.8	21	2734
14	Sweden	154	1.7	38	5379
15	Turkey	130	1.4	17	861

The H-index and activity index investigation of the top 15 nations in child psychology research revealed that the USA dominated with 2,399 records, the greatest H-index (129), and a TGCS of 96,270, demonstrating its considerable research influence. The UK follows with an H-index of 94 and a TGCS of 48,487, while Canada, Australia, and Germany also rank high in terms of research impact. Russia had 456 records but a low H-index (12), indicating a weak citation influence. China and Brazil have moderate research production but low h-indices, indicating emerging contributions. European countries, such as Spain, Italy, France, and the Netherlands, have consistent research performance. India and Turkey had lower activity and H-index levels, indicating the need for increased academic participation. Overall, the data show a substantial research concentration in Western countries, with increasing contributions from China, Brazil, and India.
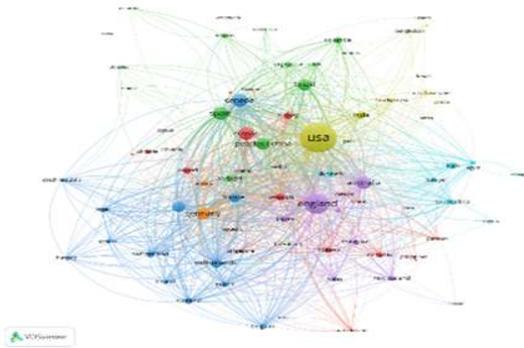
Figure-1 Bibliographic Coupling of Countries

Figure 1 depicts the bibliographic coupling of countries, or the intensity of linkages between countries based on common references in academic papers. The size of each country's node represents its significance in the dataset, with the United States, the United Kingdom, and Germany having the most influence. Countries are clustered (colour-coded) according to their citation links, which indicate significant research partnerships in the field. There are seven clusters. The dense network of linkages shows an integrated worldwide research environment with specific areas (for example Europe, North America, and Asia) showed strong bibliographic coupling, indicating common research interests and academic impacts.

CONCLUSION

This scientometric study examines research output in child psychology across continents, focusing on important contributors, cooperation networks and publication patterns. The data show that North America and Europe lead in terms of research production and effect, with Asia and other areas progressively expanding their contributions to the field. Strong bibliographic coupling across nations emphasises the value of international collaboration in improving this area. However, variations in research productivity indicate the need for improved financing, cross-border collaboration, and capacity-building initiatives, particularly in underrepresented regions. This study provides beneficial information. For policymakers, organizations, and researchers seeking to improve global collaboration and information dissemination in child psychology by identifying key research centers and developing trends. The Web of Science database only includes peer-reviewed publications, resulting in a limited diversity of records.

REFERENCES

1. Anbukkarasi, S., Sivasekaran, K., & Rethi, M. (2023, August). Research Output on Artificial Intelligence in India: A Scientometric Study. In *International Conference on Advances in Artificial Intelligence and Machine Learning in Big Data Processinging* (pp. 25-36). Cham: Springer Nature Switzerland. *http://doi.org/10.1007/978-3-031-73068-9_3*

2. ASHA, B. (2021). Continent wise Analysis of Library Trends Research: A Bibliometric Study.

3. Ashokumar, P., & Sivasekaran, K. (2017). Mapping Of Global Level Authorship Trends In Clinical Neurology Using Scientometric Analysis. *International Journal of Library Science and Information Management (IJLSIM)*, *3*(2), 68-73.

4. Gujral, G., & Shivarama, J. (2022). Scientometric mapping of global publication trends in health informatics domain. *COLLNET Journal of Scientometrics and Information Management*, *16*(1), 145-159. *http://doi.org/10.1080/09737766.2022.2030201*

5. Gunaseelan, S., & Ranganathan, C. (2022). Continent-wise Analysis of Research Productivity in Limnology with Activity and Priority Index: a scientometric study. *College Libraries*, *37*(II), 27-39. *http://doi.org/10.5281/zenodo.8129201*

6. Naveed, S., Waqas, A., Majeed, S., Zeshan, M., Jahan, N., & Sheikh, M. H. (2017). Child psychiatry: A scientometric analysis 1980-2016. *F1000Research*, *6*, 1293.*http://doi.org/10.12688/f1000research.12069.1*

7. Ramasamy, R. U., Sivasekaran, K., & Navasakathi, C. (2013). Scientometric Analysis of Thorium Research in India: A Case study. Global Research Analysis, 4, 80-82.

8. Rethi, M., & Sivasekaran, K. (2025). A Scientometric Analysis of Research on Environmental Education. *South India Journal of Social Sciences*, *23*(1), 159-168.

9. Saravanan, K., Sivankalai, S., Selvi, N., Sindhusaranya, B., Sowndharya, R., & Sivasekaran, K. (2024, September). A Scientometric Review of Fuzzy Graph Research: Trends, Key Contributions, and Future Directions. In 2024 5th International Conference on Smart Electronics and Communication (ICOSEC) (pp. 1007-1014). IEEE.*http://doi.org/ 10.1109/ICOSEC61587.2024.10722752*

10. Sivasekaran, K. (2015). India's Contribution on Renewable Energy Research Output: A Scientometric Study. *Journal of Advances in Library and Information Science*, *4*(4), 311-316.

11. Surulinathi, M., Balasubramani, R., & Kalisdha, A. (2013). Continent wise Analysis of Green Computing Research: a scientometric study. *Journal of Advances in Library and Information Science*, *2*(1), 39-44.