Library Progress International
Vol.43, No.1, January-June 2023: P.110-117
DOI: 10.48165/bpas.2023.43.1.12

Print version ISSN 0970 1052
Online version ISSN 2320 317X

Original Article

Available online at www.bpasjournals.com

Authorship Pattern and Collaborative Research on Encephalitis

[1]Pushpa* and [2]Shantadevi T

Author's Affiliation:
1Research scholar, Department of Library and Information Science, Karnataka State Akkamahadevi Women's University, Vijayapur, Karnataka 586105, India
G-mail: pushpamlib@gmail.com
2Professor, Department of Library and Information Science, Karnataka State Akkamahadevi Women's University, Vijayapur, Karnataka 586105, India
G-mail: shantaakkaraki@gmail.com

Corresponding Author: Pushpa, Research scholar, Department of Library and Information Science, Karnataka State Akkamahadevi Women's University, Vijayapur, Karnataka 586105, India
E-mail: pushpamlib@gmail.com

(Received on 15.02.2023, Revised on 24.05.2023, Approved on 22.04.20233, Accepted on 31.05.2023, Published on 15.06.2023)

How to cite this article: Pushpa and Shantadevi T. (2023). Authorship Pattern and Collaborative Research on Encephalitis. *Library Progress International,* 43(1), 110-117.

ABSTRACT

The current study intends to examine trends in authorship patterns and collaborative research in the field of encephalitis. The PubMed database was used as the primary source of data for the study, which considered 19638 papers on encephalitis published between 2013 and 2022.The study investigates several types of collaboration and collaboration measurements such as the Degree of Collaboration, the Collaborative Index, the collaborative coefficient and modified coefficient, and the authorship pattern. According to the study's findings, the year-by-year distribution depicts how scientific production develops year by year, with the highest production in 2021 (14.42%) and the lowest production in 2018 (7.99%).In the topic of Encephalitis, collaborative authorship accounts for over 90% (18708), whereas single-author publication accounts for only 4.74% (930).It has been observed that collaborative research is on the rise in this subject. During the study period from 2013 to 2016, the degree of collaboration ranged from 0.92 to1.01, with an average of 0.97. The average index is now 5.97, up from 5.63 to 6.27. The collaborative and modified coefficients grew from 0.72 to 0.75, resulting in an average CC of 0.75. Finally, the research suggests that collaboration is on the rise in the field of encephalitis.

KEYWORDS: *Authorship Pattern, Collaborative Research, Encephalitis, PubMed.*

INTRODUCTION

"Encephalitis is an infectious or inflammatory disorder of the brain that presents with fever, headache and an altered level of consciousness there may also be focal or multifocal neurologic deficits and focal or generalized seizure activity. Encephalitis is uncommon but is a neurological emergency which must be considered in a patient presenting with altered consciousness. Encephalitis is a diffuse inflammatory process of the brain parenchyma associated with evidence of brain dysfunction. The presentation of encephalitis can be acute or chronic. The aetiology of encephalitis can be broadly divided into two major subtypes. Infection-related

encephalitis is a direct consequence of pathologic viral, bacterial or parasitic agents. Harper simplex virus (HSV) and varicella-zoster virus are the most common cause of acute infectious encephalitis."

Authorship Pattern and Collaboration:
In the context of research and development, author productivity is often quantified in terms of scientific and technical production; however, this work explores the authorship pattern and collaborative research of 19638 encephalitis records released between 2013 and 2022.

PubMed: "PubMed is a free resource supporting the search and retrieval of biomedical and life sciences literature to improve health–both globally and personally. The PubMed database contains more than 34 million citations and abstracts of biomedical literature. It does not include full-text journal articles; however, links to the full text are often present when available from other sources, such as the publisher's website or PubMed Central (PMC). Available to the public online since 1996, PubMed was developed and is maintained by the National Center for Biotechnology Information (NCBI), at the U.S. National Library of Medicine (NLM), located at the National Institutes of Health (NIH)."

REVIEW OF LITERATURE

This study was conducted by **Hadagali and Anandhalli (2015)** on the neurology literature from 1961 to 2010. The relative growth rate (RGR) and doubling time (Dt) of neurology literature have been estimated; examine the various growth patterns to see if neurology literature follows the exponential, linear, or logistic model. It does, however, closely follow the exponential growth concept.

Gupta BM (2013) examined Bangladesh's S&T research output from 2001 to 2010 across numerous factors, including the share of international collaboration publications at the national level as well as across subjects, as well as features of high productivity instruction and authors.

Ramakrishnan and Ramesh Babu (2007) presented a bibliometric analysis of the Hepatitis literature production in three databases, including MEDLINE, CINAHL, and IPA. Literature spans the years 1984 through 2003. The publication trends were examined using Correlation Factor Analysis (CFA), which revealed that the database's internal clock was generally consistent.

Garg et al. (2009) conducted a bibliometric analysis of global malaria vaccine research using the PubMed database from 1972 to 2004, examining the pattern of output, geographical distribution, the profile of different countries in different subfields, and the pattern of citations using Google Scholar.

The study revealed authorship trends and collaborative research in Economics by **Nirmala Biradar and PG Tadasad (2016).** The paper addresses collaboration types and describes collaboration measurements. The collaborative Index (CI) is 2.06, the Degree of Collaboration (DC) is 0.58, and the Collaboration Co-efficient (CC) is 0.30.

Shridevi Sindagi and Gavisiddappa Anandahalli (2018) analyse authorship trends, collaborative research, and time series data in the field of lung cancer. The Pubmed Database was used to collect literature from 1997 to 2016. Collaborative research with a high degree of success (0.92). This analysis validated Lotka's law, relative growth rate, and authorship pattern.

OBJECTIVES

1. Observe the authorship pattern in the field of encephalitis
2. Determine the collaborative dimensions such as collaborative Index, Degree of collaboration, collaborative co-coefficient, and moderate coefficient.

METHODOLOGY

The primary source of data for this study was the PubMed database, which was utilised to

extract the trustworthy literature from the database using the search terms "encephalitis: "encephalitis" [All Fields] OR "encephalitis" [MeSH Terms] OR "encephalitis"[All Fields]" from 2013 to 2022. The gathered data were processed using MS-Excel to examine various elements of publication output, year-by-year distribution, and so on.

ANALYSIS AND INTERPRETATION

The acquired data was examined using MS Excel for meaningful analysis and interpretation, and various statistical and scientometrics techniques were used in the data analysis and interpretation process to get relevant results.

Table 1: Publication Distribution by Year

Sl. No.	Year	No of Publications	%	Cumulative no of Publications	%
1	2013	1592	8.1		
2	2014	1635	8.3	3227	66.6
3	2015	1574	8.0	3209	66.2
4	2016	1658	8.4	3232	66.7
5	2017	1649	8.4	3307	68.2
6	2018	1569	8.0	3218	66.4
7	2019	2384	12.1	3953	81.6
8	2020	2730	13.9	5114	105.5
9	2021	2832	14.4	5562	114.8
10	2022	2015	10.3	4847	100
Total		19638	100		

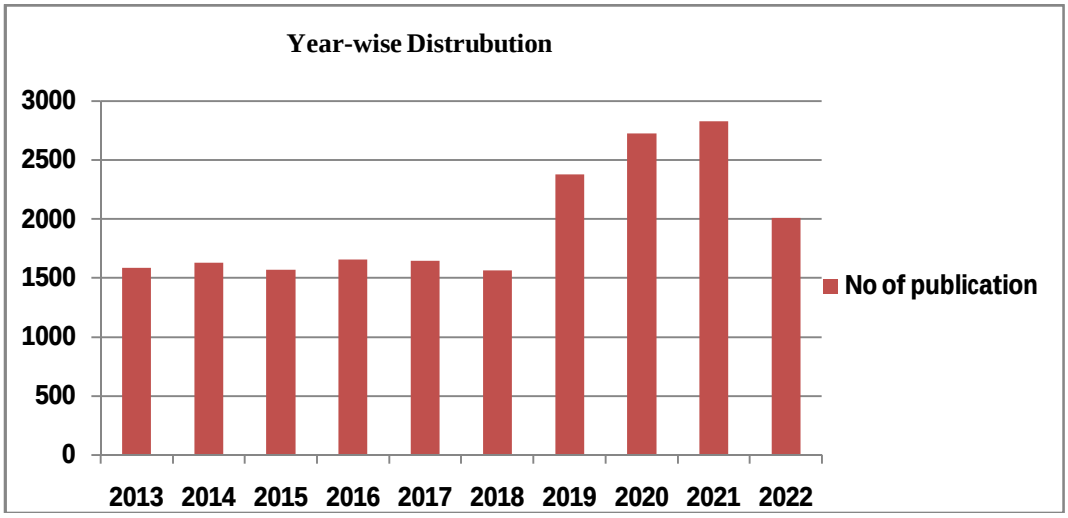

Figure 1: Year-wise Distribution

Table 1 shows the research output of Encephalitis from 2013 to 2022, with the most papers, 2832 (14.42%), published in the year 2021, followed by 2020 with (13.90%) of total publication. In contrast, the minimal number of papers published in 2018 was 1569 (7.99%) of the total publishing. The results indicate a consistent trend in the field of encephalitis.

Table 2: Authorship Trends and Publication Patterns

No of Authors	No of Records	%	CUM %
One	930	4.74	4.74
Two	1701	8.66	13.40
Three	2074	10.56	23.96
Four	2423	12.34	36.30
Five	2325	11.84	48.14
Six	2235	11.38	59.52
Seven	1777	9.05	68.57
Eight	1424	7.25	75.82
Nine	1191	6.06	81.89
Ten	964	4.91	86.80
> Ten	2594	13.21	100.00
Total	19638	100	

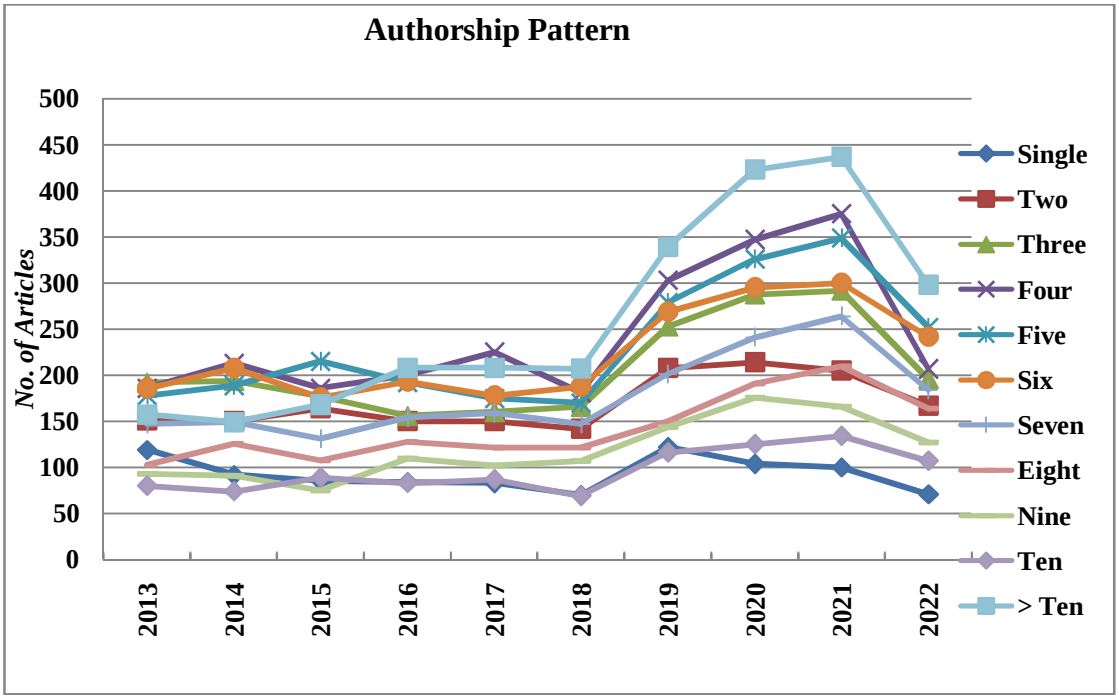

Figure 2: Pattern of Authorship

Table 2 presents an overview of the authorship pattern of papers published between 2013-2022. All of the publications in this table were classified into 11 categories. It is discovered that out of 19638 contributions, a total of 2594 (13.21%) publications were published by more than ten writers. Following that were four authors 2423(12.34%), six authors 2325(11.84%), two authors 1701(8.66%), three authors 2074(10.56%), six 2235(11.38), seven authors 1777(9.05%), eight authors 1424(7.25%), nine authors 1191 (6.06%), and ten authors 964(4.91%). During the study period, only 930 (4.74%) publications were written by a single author. The majority of publications are co-authored. It is possible to conclude that there is a collaborative research trend in the field of Encephalitis.

Table 3: Degree of Collaboration

Year	Single	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	> Ten	Total	DC
2013	119	151	192	186	178	186	147	103	93	80	157	1592	0.92
2014	92	150	194	213	189	208	149	126	91	74	149	1635	0.96
2015	85	164	177	186	215	176	131	108	75	89	168	1574	0.96
2016	84	150	156	200	192	193	154	128	110	83	208	1658	0.98
2017	83	150	160	225	175	178	159	122	102	87	208	1649	0.97
2018	70	142	166	181	170	188	147	122	107	69	207	1569	0.99
2019	122	208	253	303	279	269	201	150	144	116	339	2384	0.96
2020	104	214	288	347	326	295	241	191	176	125	423	2730	0.99
2021	100	205	292	375	349	300	264	210	166	134	437	2832	1.00
2022	71	167	196	207	252	242	184	164	127	107	298	2015	1.01
Total	930	1701	2074	2423	2325	2235	1777	1424	1191	964	2594	19638	0.98

Table-3 shows the degree of collaboration of writers by year. The year-by-year degree of collaboration ranges from 0.92 to 1.01, with an average of 0.97 from 2013 forward; it has gradually increased. This obviously suggests that collaborative research exists, and a high level of collaboration is documented in the Encephalitis literature. K Subramnyam's (1982) (4) formula is used to calculate the degree of collaboration.

$$C = \frac{N_m}{N_m + N_s}$$

Where
C= Degree of collaboration
Nm = Number of Multiple Authors
Ns= Number of single authors

Collaborative Index:
Lawani (1986) (5) developed this as one of the first CI measurements. It represents the average number of authors. It assigns a non-zero weight to single-authored papers with no collaboration.

Calculation: CI=(f1)1+(f2)2+(f3)3+L+(fk)k / N

Using data in Table 1, duration 2013

$$CI = \frac{(119+151*2+192*3+186*4+178*5+186*6+147*7+103*8+93*9+80*10+157*11)}{1592}$$

= (199+302+576+744+890+1116+1029+824+837+800+1727) / 1592
= 9044 / 1592
= 5.63

Table 4: Collaborative Index

Year	Single	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	> Ten	Total	%	CI
2013	119	151	192	186	178	186	147	103	93	80	157	1592	8.1	5.63
2014	92	150	194	213	189	208	149	126	91	74	149	1635	8.3	5.67
2015	85	164	177	186	215	176	131	108	75	89	168	1574	8.0	5.73
2016	84	150	156	200	192	193	154	128	110	83	208	1658	8.4	6.02
2017	83	150	160	225	175	178	159	122	102	87	208	1649	8.4	5.99
2018	70	142	166	181	170	188	147	122	107	69	207	1569	8.0	6.05
2019	122	208	253	303	279	269	201	150	144	116	339	2384	12.1	6.00
2020	104	214	288	347	326	295	241	191	176	125	423	2730	13.9	6.19
2021	100	205	292	375	349	300	264	210	166	134	437	2832	14.4	6.21
2022	71	167	196	207	252	242	184	164	127	107	298	2015	10.3	6.27
Total	930	1701	2074	2423	2325	2235	1777	1424	1191	964	2594	19638	100	6.01
%	4.7	8.7	10.6	12.3	11.8	11.4	9.0	7.3	6.1	4.9	13.2			

Table 5: Collaborative Co-efficient, Modified- co-efficient and Collaborative Index

Year	Total Authors	%	CC	MC	CI
2013	1592	8.1	0.72	0.72	5.63
2014	1635	8.3	0.73	0.73	5.67
2015	1574	8.0	0.73	0.73	5.73
2016	1658	8.4	0.75	0.75	6.02
2017	1649	8.4	0.75	0.75	5.99
2018	1569	8.0	0.75	0.75	6.05
2019	2384	12.1	0.75	0.75	6.00
2020	2730	13.9	0.76	0.76	6.19
2021	2832	14.4	0.76	0.77	6.21
2022	2015	10.3	0.76	0.76	6.27
Total	19638	100	0.75	0.75	6.01

The Table reveals that CI, the average Collaboration Index, is 5.97, having ascended from 5.63 in 2013 to 6.27 in 2022.

Table 6: Collaborative Co-efficient and Modified Coefficient

Year	Single	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	> Ten	Total	%	CC	MC	CI
2013	119	151	192	186	178	186	147	103	93	80	157	1592	8.1	0.72	0.72	5.63
2014	92	150	194	213	189	208	149	126	91	74	149	1635	8.3	0.73	0.73	5.67
2015	85	164	177	186	215	176	131	108	75	89	168	1574	8.0	0.73	0.73	5.73
2016	84	150	156	200	192	193	154	128	110	83	208	1658	8.4	0.75	0.75	6.02
2017	83	150	160	225	175	178	159	122	102	87	208	1649	8.4	0.75	0.75	5.99
2018	70	142	166	181	170	188	147	122	107	69	207	1569	8.0	0.75	0.75	6.05
2019	122	208	253	303	279	269	201	150	144	116	339	2384	12.1	0.75	0.75	6.00
2020	104	214	288	347	326	295	241	191	176	125	423	2730	13.9	0.76	0.76	6.19
2021	100	205	292	375	349	300	264	210	166	134	437	2832	14.4	0.76	0.77	6.21
2022	71	167	196	207	252	242	184	164	127	107	298	2015	10.3	0.76	0.76	6.27
Total	930	1701	2074	2423	2325	2235	1777	1424	1191	964	2594	19638	100	0.75	0.75	6.01
%	**4.7**	**8.66**	**10.56**	**12.34**	**0.00**	**11.38**	**9.05**	**7.25**	**6.06**	**4.91**	**13.21**					

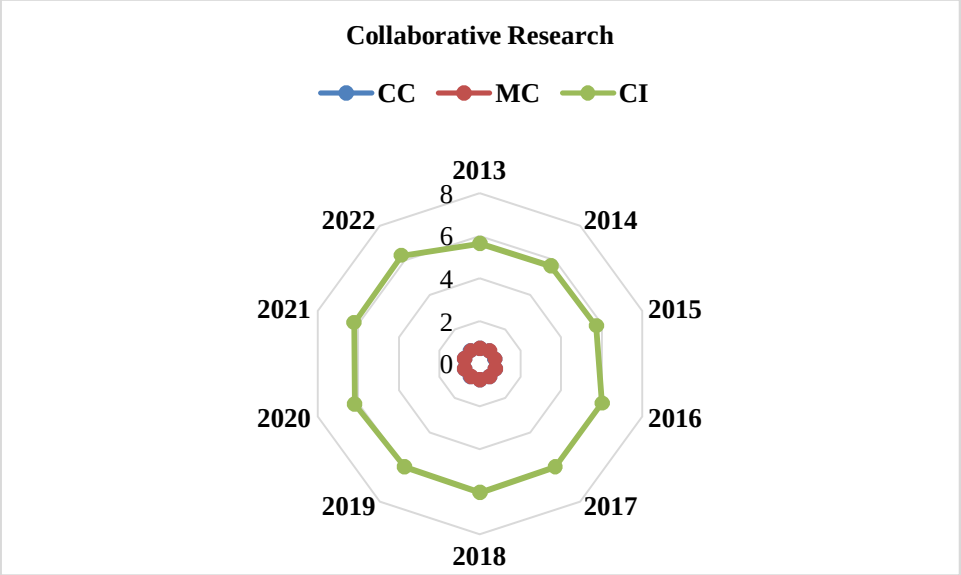

Figure 3: Collaborative research

Table- 5 displays the collaboration co-efficient in the literature on Encephalitis from 2013 to 2022. Data analysis reveals that out of the 19638 articles published, the single author share is 930 and the multiple paper author share is 18708. It shows that the contribution of numerous authors is greater than that of a single author. In the Encephalitis literature, the collaborative co-efficient is 0.7, while the modified coefficient is 0.7. The Table shows that there is a high level of joint research activity.

FINDINGS

The primary findings of the current investigation are summarized below.

1. The research production in the Encephalitis literature from 2013 to 2022, with a maximum of 2832 (14.4%) papers produced in 2021.
2. There has been a significant increase in the publication of studies in the field of Encephalitis.
3. The majority of publications are co-authored, indicating a high level of collaboration in the subject of Encephalitis literature.
4. The Collaborative Index shows that the average is 5.94. The collaborative index can be observed in 2021.
5. The Collaborative coefficient has improved from 0.72 in 2013 to 0.75 in 2022, indicating that scientific research is fairly collaborative, with an average CC of 0.75.
6. In the year 2021, the maximum degree of collaboration was 0.97.6.In the year 2021, the maximum degree of collaboration was 0.97.
7. Finally, it is possible to infer that there is a collaborative tendency in the field of encephalitis.

CONCLUSION

The overall contribution output of 19638 represents joint research. During the period from 2013 to 2022, the degree of collaboration reached 0.97. The collaborative coefficient has risen to 0.75 from 0.72. The collaborative coefficient was found to be 0.7. The value of the collaborative index for single-author contributions and two-author contributions is decreasing. The research effort has steadily increased over time, and it is now clear that a significant amount of study is being conducted in the subject of encephalitis.

REFERENCES

1. Biradar Nirmala, tadasad PG. (2016). Authorship Pattern and collaborative research in economimics. *PEARL A journal of library information science*. 10(1).
2. Garg, Kailash. C. et al ... (2009). Bibliometrics of global malaria vaccine research. *Health Information and Libraries Journal*, 26, 22-31.
3. Gupta, B.M., & Kumar, S. (2001), citation analysis of theoretical population genetics literature. Library Herald, 39(4), 208-226.
4. Hadagali, Gururaj. S., &, Gavisiddappa. Anadhalli. (2015). Modeling the growth of Neurology Literature. *Journal of Information Science Theory and Practice,* 3(3), 45-63.
5. Lawani SM, (1986). Some bibliometric correlates of quality in scientometric research. *Scientometrics*. 9(1&2), 13-25.
6. Ramakrishnan, J., & Ramesh Babu, B. (2007). Literature on hepatitis (1984-2003): a bibliometric analysis. *Annals of Library and Information Studies,* 54(4), 195-200.
7. Shridevi Sindagi and Gavisiddappa Anandahalli (2018) Authorship Trends and collaborative research in lung cancer: A time series analysis stud. *Library philosophy and practice (e-journal)*
8. Subramanyam K, 1982. Research collaboration and funding in biochemistry and chemical engineering. *International Forum on Information and Documentation*. 7(4), 26-29.