DOI: 10.5958/0976-2469.2021.00044.0

LIBRARY HERALD
Vol 59 No 4
December 2021

COVID-19 and Delirium: A Bibliometric Assessment of Global Publications

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The present study examines global research output (n=423) published during 2020-21 on 'Covid-19 and Delirium' as indexed in Scopus database using various bibliometric indicators. Global publications in the field averaged citation impact per paper of 9.69. 159 authors from169 organisations published papers on 'Delirium and COVID-19'. Researchers from USA, U.K. and Italy contributed maximum number of publications. The three most productive organisations were Harvard Medical School, USA, Massachusetts General Hospital, USA and Kings' College, London, U.K. with researchers from these institutions contributing to 23, 18 and 13 papers respectively. Organizations with highest citations per paper (CPP) included Edinburgh Medical School, USA (52.5 CPP), Universite de Montpellir, France (52.17 CPP) and University of Melbourne Australia (49.17 CPP). The three most productive authors are E.W. Ely, A. Bianchetti, and D. Davis contributing 5,4 and 4 papers, respectively. The top three most impactful authors in terms of citations per papers are R.C.E. Bowyer, M.B. Freiden and N. Mangino (115.33 CPP each). The top three journals which published papers on this theme included *Journal of the American Geriatrics, Asian Journal of Psychiatry* and *Frontiers in Neurology,* publishing 15, 9 and 9 papers. respectively. The top three most impactful journals in terms of CPP were *Critical Care* (231), *Journal of the American Geriatrics* (137), *Journal of the Pain and Symptoms Management* (121).

Keywords:*Covid-19, Delerium, Global Publications, Bibliometrics, Scientometrics*

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1 INTRODUCTION

Covid-19 is an acute respiratory disorder caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). It was declared a pandemic by World Health Organization in March 2020. Covid-19 is a respiratory viral disorder causing viral pneumonia and acute respiratory distress syndrome in acute conditions. In mild cases it has common flu like symptoms. In some cases, COVID-19 leads to systemic features involving heart, liver, brain etc. In severe cases, Covid-19 infection can lead to neurological complications including delirium[1,2]. Delirium is usually seen in patients with severe infection, especially among those admitted to the intensive care unit[3].

Delirium is characterised by inattention, altered consciousness, disturbance in other cognitive functions, thought and language disturbances, hallucinations, delusions, and disturbed sleep cycle. Elderly may present with delirium as a major symptom in absence of other classical symptoms and signs of COVID disease. Delirium can be a presenting symptom even without typical signs and symptoms of COVID-19 i.e. fever or cough. The prevalence of delirium in hospitalised Covid-19 patients range from 25% to 33%, and this figure increases to 65% in patients admitted to the intensive care unit[4-8].)

11 LITERATURE REVIEW

Few bibliometric studies related to Covid-19 and mental health have been conducted in the past. Among them, Gul, Rehman, Ashq and Khattak[9]evaluated the mental health literature in relation to Covid-19 pandemic. The study found USA to be the most productive country and China the most impactful country in the subject. Akitunde et al [10]examined global publishing trends in Covid-19 pandemic on mental health, using data from Web of Science database and analysed using bibliometric indicators. Maalouf, Mdwar, Meho and Akl[11]conducted a comparative bibliometric analysis of Covid-19, Ebola and H1N1 outbreaks on mental health using Embase, PubMed and Scopus databases. The study found high research output on Covid-19 as compared to literature output on Ebola and H1N1 combined. Gupta, Dhawan, Ahmed and Mamdapur[12] evaluated global research output on Covid-19, using various bibliometric indicators and Scopus database. 82.93% global research on Covid-19 originated in top 10 countries which includes the USA, China and UK. The major area of research interest in Covid-19 was on clinical studies with focus on virological and respiratory aspects. Mamdapur, Gupta and Grover[13] analysed 160 high cited global publications on 'Impact of COVID-19 on mental health' using Scopus database. The study identified significant countries, organisations, prolific authors and journals in the field.The present study is an attempt to

quantitatively and qualitatively analyse global literature on 'Delirium in Patients with COVID-19'.

2 OBJECTIVES

The purpose of the present study is to examine and evaluate the global research output on Covid-19 and delirium. The objectives of the study are : (i) to study publication output and type of papers; (ii) to identify major countries, authors, organisations and their research collaborative linkages (iii) to identify significant keywords and their broad subject areas and linkages (iv) to identify the important source journals and (v) to study the characteristics of highly cited papers.

3 METHODOLOGY

The Scopus database was used to retrieve publication output on Covid-19 and delirium. A well defined search strategy was formulated using key search terms and clubbing into two sets- (I) Search terms like "Covid-19" OR "2019 novel coronavirus" or "Coronavirus 2019" or "Coronavirus disease 2019" or "2019-novel COV" or "2019nCOV" or "Covid 2019" OR "Covid19" or "Coronavirus 2019" or "nCOV-2019" or "ncov 2019" or "nCOV 2019" or "2019-ncov" or "SARS-COV-2" and (ii) Search terms like "delirium". These two sets of search terms were clubbed to "Keywords" and "Article Title" tags. The search conducted on 20th June 2021 yielded 423 global records. The results were further limited to country-wise, author-wise, affiliation-wise, source-title, publication type etc. VOS viewer tool was used to draw network visualization maps.

4 ANALYSIS AND RESULTS

41 PUBLICATION GROWTH

The global research output on 'Covid-19 and Delirium' resulted in a total of 423 (2020=268, 2021=155) publications as seen from Scopus database. These 423 papers received 4099 citations, averaging 9.69 citations per paper. Half (50.59%) of the total publications appeared as articles and the rest as letters (23.64%), reviews (13.23%), notes (5.91%), editorial (5.2%), and short survey (1.42%). 95.4% share of the global publication output appeared in English language, followed by Spanish (1.65%), French (1.18%), Dutch, Italian, Portuguese (0.47% each), Norwegian and Russian (0.24% each).

42 TOP 15 COUNTRIES

Researchers from 160 countries participated in global research on 'Covid-19 and Delirium', but their distribution is highly skewed. Authors from 39 countries published 1-5 papers each, authors from 7 countries published 6-10 papers each, authors from 6 countries published 11-20 papers each, authors from 5 countries published 21-100 papers each and authors from 1 country published 118 papers. The researchers from U.S. contributed the largest global publication share (27.9%), followed by researchers from U.K. (17.02%), Italy (12.76%), Spain (7.33%), France (6.86%), India (6.15%). In terms of research impact [measured by citation per paper (CPP) and relative citation index (RCI)], eleven countries performed above the group average (9.69 and 1.69) with highest CPP and RCI for publications from Canada (32.58 and 3.36), Australia (31.83 and 3.28), Switzerland (24.88 and 2.57), Spain (21.84 and 2.25), United Kingdom (19.92 and 2.06), India (18.77 and 1.99), France (16.72 and 1.730, Germany (16.44 and 1.7), Italy (13.28 and 1.39) and United States (13.04 and 1.35).

Figure 1 presents the collaborative linkages network among authors from most productive countries for research on 'Covid-19 and Delirium'. The distance between countries in figure 1 and thickness of links depicts their research collaboration. The higher diameter of a node shows more weightage in research collaboration. Collaboration linkage among 32 countries is depicted in 9 clusters, 150 links and total link strength of collaborative network is 258. Nine clusters (depicted in different colours) in the network are: Cluster1(in Red colour) includes Belgium, France, Italy, Norway, Romania, Spain and Turkey. Cluster2 (in Green colour) includes Bangladesh, Cyprus, India, Indonesia and UK. Cluster3 (in Indigo colour) includes Germany, Ireland, Singapore and Switzerland. Cluster4 (in Light Green colour) includes Austria, Brazil and Poland. Cluster5 (in Purple colour) includes Canada, China and SaudiArabia. Cluster6 (in Blue colour) includes Israel, Sweden and Netherlands. Cluster7 (in Orange colour) includes Colombia, Mexico, and United States. Cluster8 (Brown) included Denmark, Iran. Cluster9 (in Pink colour) includes Australia and NewZealand.

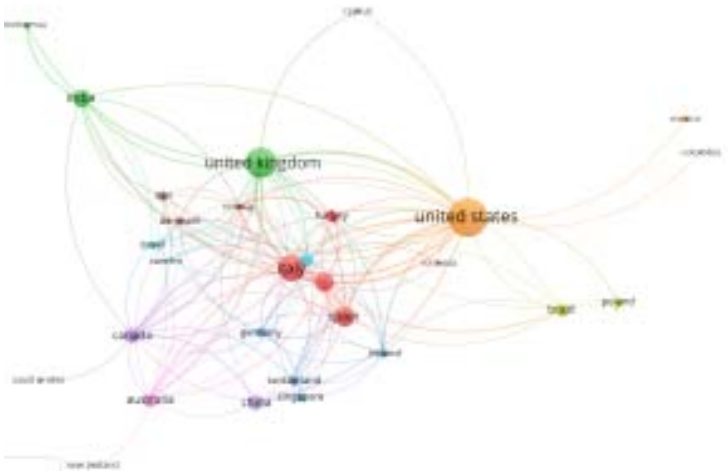
Table 1. Global Publication Share and Output of Top 15 Countries in 'Covid-19 and Delirium' Research during 2020-21

S.No.	Name of the Country	TP	TC	CPP	%TP	HI	ICP	%ICP	RCI	TLS
1	United States	118	1539	13.04	27.90	16	36	30.51	1.35	73
2	United Kingdom	72	1434	19.92	17.02	15	24	33.33	2.06	55
3	Italy	54	717	13.28	12.76	14	16	29.63	1.37	46
4	Spain	31	677	21.84	7.33	10	12	38.71	2.25	31
5	France	29	485	16.72	6.86	7	11	37.93	1.73	38
6	India	26	488	18.77	6.15	9	7	26.92	1.94	20
7	Canada	19	619	32.58	4.49	6	13	68.42	3.36	33
8	China	19	311	16.37	4.49	6	7	36.84	1.69	12
9	Australia	18	573	31.83	4.26	5	11	61.11	3.28	27
10	Brazil	15	43	2.87	3.55	4	4	26.67	0.3	8
11	Netherlands	14	85	6.07	3.31	5	6	42.86	0.63	25
12	Turkey	12	28	2.33	2.84	3	1	8.33	0.24	7
13	Germany	9	148	16.44	2.13	5	5	55.56	1.7	16
14	Iran	8	39	4.88	1.89	3	5	62.5	0.5	12
15	Switzerland	8	199	24.88	1.89	5	4	50	2.57	10
	Total	452	7385	16.34					1.69	
	World	423	4099	9.69						

TP-Total Publications, TC-Total Citations, CPP-Citations Per Paper, HI-Hirsch Index, ICP-International Collaborative Publications, RCI-Relative Citations Index, TLS-Total Links Strength

TP-Total Publications, TC-Total Citations, CPP-Citations Per Paper, HI-Hirsch Index, ICP-International Collaborative Publications, RCI-Relative Citations Index, TLS-Total Links Strength

Fig.1. Co-authorship Collaborative Network of Countries



42 DISTRIBUTION OF RESEARCH BY POPULATION AGE GROUPS

On age-group classification of research output, it was found that aged(158 papers and 37.35% share) were the most affected group, followed by adults(103 papers and 24.35% share), middle aged (84 papers and 19.86% share), very elderly (79 papers and 18.68% share), aged 80 and over (63 papers and 14.89% share).

Table 2.Distribution of Publications by Population Age Groups

S.No.	Population Group	TP	TC	CPP	%TP
1	Aged	158	1821	11.53	37.35
2	Adult	103	1124	10.91	24.35
3	Middle Aged	84	1237	14.73	19.89
4	Very Elderly	79	1010	12.78	18.68
5	Aged, 80 and over	63	752	11.94	14.89
TP=Total Papers, TC=Total Citations. CPP=Citations Per Paper					

43 SUBJECT WISE DISTRIBUTION OF RESEARCH OUTPUT

The global 'Covid-19 and Delirium' research output is distributed across 13 broad subjects according to Scopus database classification. Medicine (90.54%) accounted for the highest publication share, followed by Neuroscience (16.78%), Nursing (8.98%), Biochemistry, Genetics and Molecular Biology (8.27%), psychology (6.38%), Pharmacology, Toxicology and Pharmaceutics

(4.02%). In terms of citation impact, Biochemistry, Genetics and Molecular Biology registered the highest CPP (21.91).

Table 3: Subject Wise Distribution of Publications

S.No	Name of the Subject	TP	%TP	TC	CPP
1	Medicine	383	90.54	3406	8.89
2	Neuroscience	71	16.78	508	7.15
3	Nursing	38	8.98	413	10.87
4	Biochemistry, Genetics and Molecular Biology	35	8.27	767	21.91
5	Psychology	27	6.38	170	6.30
6	Pharmacology, Toxicology and Pharmaceutics	17	4.02	144	8.47
7	Global total	571		5408	
TP=Total Papers, TC=Total Citations. CPP=Citations Per Paper					

44 SIGNIFICANT KEYWORDS

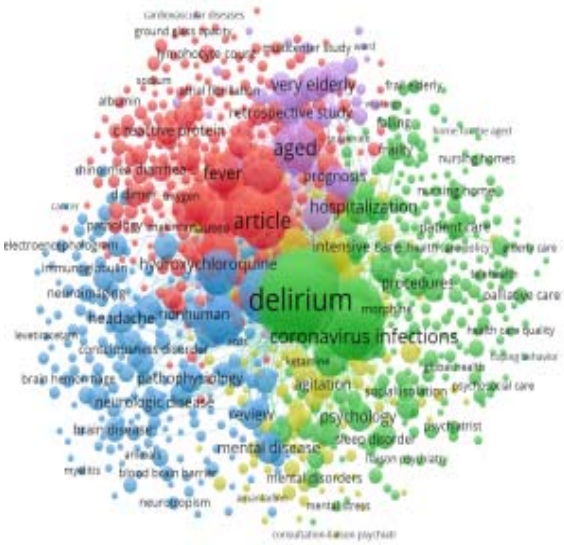
Keywords provide a deep insight into the subject and give a direction towards research trends in the field. Significant keywords on 'Delirium research in relation to Covid-19' have been identified and listed in Table 4 in decreasing order of frequency along with their total link strength.

Figure 2 depicts correlation between significant keywords. Out of 4270 keywords on COVID 19 and delirium research, 891 are identified and depicted in 6 clusters (represented in different colours). Clusterc1 (Green, 262) included keywords of Delirium, Pandemic, Dementia, Psychology, Mental disease, Mental stress etc. Cluster2 (Red, 252) included Article, Clinical article, C Reactive protein, Thorax radiography, lymphocyte count, Remdesivir, Diarrhoea etc. Cluster3 (Blue, 196) included Neurologic disease, Pathophysiology, Brain haemorrhage, Brain disease, Neurotropism, SARS-COV-2, etc. Cluster4 (Yellow, 118) included Agitation, Consultation-liaison, Neuropsychiatry, Valproic acid, Psychiatry, etc. Cluster5 (Purple, 62) included Aged, Very elderly, Hospital mortality, Geriatric assessment, etc. Cluster6 (1) included lethargy.

Table 4: Distribution of Keywords by Frequency

Keyword	Frequency	TLS	Keyword	Frequency	TLS
Delirium	419	14386	Hospitalization	82	3525
Human	405	14611	Very Elderly	80	3372
Coronavirus 2019	376	14008	Disease severity	74	3389
COVID19	250	8903	Artificial Ventilation	73	3135
Pandemic	228	8180	Major Clinical study	69	3085
Article	179	7603	Coughing	68	3295
Priority Journal	178	6879	Mental Disease	66	2346
Male	166	7003	Comorbidity	65	3056
Aged	161	6791	Aged,80 and over	64	2782
Virus Pneumonia	153	6131	Hydroxychloroquine	63	3078
Coronavirus infection	147	5790	Cognitive defect	61	2289
Female	145	6325	Dementia	57	1856
Pneumonia, Viral	144	5673	Depression	57	1962
Sars-Cov2	128	5038	Headache	57	2738
Severe acute respiratory syndrome	128	5319	Virology	55	2277
Beta coronavirus	116	4693	Confusion	54	2178
Fever	102	4881	Adult respiratory distress syndrome	51	2431
Complication	101	3933	C reactive protein	49	2586
Intensive Care Unit	98	3863	Neurologic disease	49	1914
Dyspnoea	84	3864	Pathophysiology	49	2052
TLS- Total Links Strength					

Figure 2. Network Visualisation Map of Co-occurrence of Keywords



45 TOP 20 ORGANISATIONS

Global output on 'Covid-19 and Delirium' came from 169 organisations, of which researchers from 142 organisations contributed 1-5 papers each, 13 organisations published 6-10 papers each, 5 organisations published 11-23 papers each. The productivity of top 20 most productive global organisations varied from 5 to 23 publications and together they contributed 42.08% global publication share and 109.15% global citation share. The bibliometric profile of these 20 organisations is presented in Table 5. Of the top 20 organisations, 7 were from United States, 5 from United Kingdom, 4 from France, 2 from Italy, 1 each from Brazil and Australia.

On further analysis, it was observed that (i) Eightout of top 20 organisations contributed publications above the group average (8.9 papers) Harvard Medical School, United State (23 papers), Massachusetts General Hospital, United States (18 papers), King's College London, United Kingdom and University College London, United Kingdom (13 papers each),etc; and (ii) Eleven organisations out of top 20 registered their citation impact per paper and relative citation index above their group average (24.02 and 2.48): Edinburgh Medical School, USA (52.5 and 5.42), Universite de Montpellir, France (52.17 and 5.38), University of Melbourne, Australia (49.17 and 5.07), University of Edinburgh, UK (46.71 and 4.82), INSERM France (40.78 and 4.21), Kings' College London, UK (37.38 and 3.86), University College London Hospitals, NHS Foundation trust, United Kingdom (373 and 3.5), etc.

Bibliographic coupling is the relation between referring documents when they refer to a common work. Figure 3 shows bibliographic coupling of 24 organisations with 6 clusters (presented in different colours), 111 links and 868 total collaborative links (TLS).

Table 5:Productivity and Impact of the Top 20 Institutions in 'COVID-19 and Delirium Research'

S.No.	Organisation	TP	TC	CPP	HI	ICP	%ICP	RCI
1	Harvard Medical School, USA	23	555	24.13	7	8	34.78	2.5
2	Massachusetts General Hospital, USA	18	478	26.56	6	3	16.67	2.74
3	King's College London, UK	13	486	37.38	7	5	38.46	3.86
4	University College London, UK	13	383	29.46	7	5	38.46	3.04
5	University College London Hospitals, NHS Foundation Trust, UK	11	373	33.91	5	4	36.36	3.5
7	Institut National De La Santa et De la Recherché Medicale, France	9	367	40.78	5	4	44.44	4.21
6	UniversitaDegliStudi de Bresica, Italy	9	107	11.89	5	5	55.56	1.23
8	Yale School of Medicine, USA	9	51	5.67	3	2	22.22	0.59
9	Universidade de Sao Paulo-USP, Brazil	7	35	5.00	3	1	14.29	0.52
10	AP-HP Assistance PubliqueHospitaux de Paris, France	7	24	3.43	4	3	42.86	0.35
11	The University of Edinburgh, U.K.	7	327	46.71	4	3	42.86	4.82
12	CNRS Centre National de la RechercheScientifique, France	6	15	2.50	3	3	50.00	0.26
13	Medical Research Council, UK	6	57	9.50	4	2	33.33	0.98
14	University of Melboume, Australia	6	295	49.17	3	4	66.67	5.07
15	UniversitaDegliStudi de Milano, Italy	6	65	10.83	4	1	16.67	1.12
16	Vanderbilt University Medical Centre, USA	6	201	33.50	4	4	66.67	3.46
17	Universite de Montpellir, France	6	313	52.17	4	3	50.00	5.38
18	Edinburgh Medical School, USA	6	315	52.50	3	3	50.00	5.42
19	Emory University School of Medicine, USA	5	18	3.60	2	2	40.00	0.37
20	Albert Einstein College of Medicine of Yeshiva university, USA	5	9	1.80	2	1	20.00	0.19
	Total of 20 Organisations	178	4474	24.02		66		2.48
	Global Total	423	4099	9.69				
	Share of 20 Organisations	42.08	109.15					

TP-Total Publications, TC-Total Citations, CPP-Citations Per Paper, HI-Hirsch Index, ICP-International Collaborative Publications, RCI-Relative Citations Index

TP-Total Publications, TC-Total Citations, CPP-Citations Per Paper, HI-Hirsch Index, ICP-International Collaborative Publications, RCI-Relative Citations Index

Figure.3. Bibliographic Coupling of Organisations

46 TOP 20 AUTHORS

159 authors contributed to global 'Covid-19 and Delirium' research. Of these, 8 contributed 1 paper each, 122 contributed 2 papers each, 20 authors contributed 3 papers each, 8 contributed4 papers each and 1 author contributed 5 papers each. The top 20 authors in 'Covid 19 and Delirium' research together contributed 70 papers (16.55%) and 2463 citations (60.09%), with an average of 35.19 CPP. Of the top 20 authors, 7 were from U.K., 3 from USA, 5 from Italy, 3 from India, 1 each from Brazil and Poland (Table 6).

On further analysis, it was observed that: (i) Nine of the top 20 authors registered their publication output above the group average (3.5): E.W, Ely (5 papers), A.Bianchetti, D. Davis, S. Grover, A. Mehra, A.Padovani, R.Rozzinni, S.Sahoo, and C.J.Steves (4 papers each) and (ii) Six of the top 20 authors registered their citation per paper and relative citation index above the group average (35.19 and 3.63): R.C. E Bowyer, M.B.Freiden, N.Mangino (115.33 and 11.9 each), C.J.Steves (88.25 and 9.1), K Kotfis (54 and 5.57), and E.W. Ely (37.80 and 3.9).

The co-authorship collaboration network shows collaboration among authors on a specific subject. Collaboration among authors on 'Covid 19 and Delirium' is shown in 5clusters (presented in different colours) in Figure 4. The collaboration network has 32 items, 5 clusters, 126 links and total link strength of 179. Red cluster includes authors like G.Bellelli, A. Bianchetti, I.Bianchetti, G.Cesaroni, F.Guerini, A.Marengoni, F.Mazzeo, R.Rozzinni andM.Trabucchi. Green cluster includes authors like I.Bonanni, C.Carrarini, A.Digiovanni, F.Dono, V.Frazzini, M,Onofrj, M. Russo and R. Speranza. The Blue cluster includes M. Amore, E.Bondi, M.Clerici, F.Colmegna, Di Giacomoe, A.Fagiolini and G. Martinotti. Light Green cluster includes F.Bisulli, I.Ferri, I.Muccioli, U.Pensato. Purple cluster includes R. Gasparotti, M.Leonardi, A.Padovani and A Pilotto.

Table 6: Productivity and Impact of 20Most Productive Authors in 'Covid-19 and Delirium'

S.No.	Name of the Author	Affiliation of the Author	TP	TC	CPP	HI	ICP	TLS	RCI
1	E.W.Ely	Vanderbilt University Medical Centre, USA	5	189	37.80	3	3	15	3.9
2	A Bianchetti	S Anna Hospital, Italy	4	98	24.50	3	1	20	2.53
3	D Davis	University College London, UK	4	45	11.25	2	1	15	1.16
4	S Grover	Postgraduate Institute of Medical Education and Research, Chandigarh, India	4	36	9.00	2	0	15	0.93
5	A Mehra	Postgraduate Institute of Medical Education and Research, Chandigarh, India	4	36	9.00	2	0	15	0.93
6	A Padovani	UniversitaDegliStudi de Bresica, Italy	4	57	14.25	3	2	14	1.47
7	R Rozzini	FoundazionePoliambulanzaInstitutoOspedaliero , Bresica, Italy	4	98	24.50	3	1	20	2.53
8	S Sahoo	Postgraduate Institute of Medical Education and Research, Chandigarh, India	4	36	9.00	2	0	15	0.93
9	CJ Steves	Kings' College London, London	4	353	88.25	3	3	26	9.1
10	SR Beach	Massachusetts General Hospital, USA	3	74	24.67	3	0	3	2.55
11	G Bellelli	UniversitaDegliStudi di Milano, Italy	3	21	7.00	3	1	14	0.72
12	RCE Bowyer	King's College London, London	3	346	115.33	3	2	26	11.9
13	MB Freidin	King's College London, London	3	346	115.33	3	2	26	11.9
14	FB Garcez	Universidade de Sao Paulo, Brazil	3	27	9.00	2	1	9	0.93
15	F Guerini	S Anna Hospital, Italy	3	96	32.00	3	1	15	3.3
16	P Knopp	University College London, London	3	44	14.67	2	0	9	1.51
17	K Kotfis	Pomeranian Medical university Szczecin, Poland	3	162	54.00	3	2	7	5.57
18	SC LaHue	University of California, USA	3	40	13.33	2	1	10	1.38
19	M Mangino	King's College London, London	3	346	115.33	3	2	26	11.9
20	TR Nicholson	King's College London, London	3	13	4.33	1	0	8	0.45
		Total of 20 authors	70	2463	35.19		23		3.63
		Global Total	423	4099	9.69				1
		Share of 20 authors	16.55	60.09					

TP-Total Publications, TC-Total Citations, CPP-Citations Per Paper, HI-Hirsch Index, ICP-International Collaborative Publications, RCI-Relative Citations Index, TLS-Total Links Strength

TP-Total Publications, TC-Total Citations, CPP-Citations Per Paper, HI-Hirsch Index, ICP-International Collaborative Publications, RCI-Relative Citations Index, TLS-Total Links Strength

Fig.4. Network Visualisation Map of Highly Prolific Authors in Areas of COVID-19 and Delirium Research

47 MEDIUM OF RESEARCH COMMUNICATION

78.72% of research publications on 'Covid-19 and Delirium' appeared in journals. 149 journals published 1-5 papers each, 10 journals published 6-10 papers each and 1 journal published 15 papers. The top 15 most productive journals contributed 4 to 15 papers each and together accounted for25.3% share. The top 5 most productive journals were: Journal of the American Geriatrics (15 papers), Asian Journal of Psychiatry, Frontiers in Neurology (9 papers each), BMJ Case Reports and Lancet Psychiatry (8 papers each).The top 5 most impactful journals with regard to citations registered per paper werre: Critical Care (231), Journal of the American Geriatrics (137), Journal of the Pain and Symptoms Management (121), Age and Ageing (115), and Asian journal of psychiatry (105).

48 HIGHLY CITED PAPERS

Of the 423 global publications on 'Covid- 19 and Delirium', only 7 (1.65%) publications received more than 100 citations (108-337 CPP) and they together received a total of 1384 citations, since their publication, averaging 197.71 citations per paper. Their distribution was skewed. 5 papers registered citations in the range of 108-198, 2 papers registered 294-337 citations. Of the 7 highly cited papers, 3 were published as articles, 3 were published as reviews and 1 was published as a letter. The 7 highly cited papers involved 72 organizations

and 84 authors. These papers appeared in 6 journals: 2 in *Lancet*, 1 each in *ActaPhysiologica, American Journal of Transplantation, Critical Care, Journal of Clinical Neuroscienc and Nature Medicine.*

5 DISCUSSION AND CONCLUSION

The present study focuses on delirium research published in relation to Covid-19 infection and listed in the Scopus database. The analysis shows that 423 papers have been published and listed in the Scopus database. These 423 papers have emerged from 160 countries, involved 159 authors and 169 organisations. The maximum number of publication emerged from USA (27.9%), followed by U.K. (17.02%), Italy (12.76%), Spain (7.33%), France (6.86%), and India (6.15%). On comparing the findings of the present study with the available data, this publication trend is in the existing lines. In terms of subjects, maximum number of papers was published under the subject heading of Medicine (90.54%) research, followed by Neuroscience (16.78%), Nursing (8.98%), and Biochemistry, Genetics and Molecular Biology (8.27%). The mean number of citations for each paper was 9.69. Eleven countries registered their citation impact above the world average (9.69 and 1.0). Maximum number of papers focused on the aged (158 papers and 37.35% share) population, followed by adult (103 papers, 24.35% share), and middleaged (84 papers, 19.86% share). In terms of the top 20 organisations which published papers on this theme, 7 organisations were from USA, 5 from U.K. 4 from France, 2 from Italy, and 1 each from Brazil and Australia. Among the top 20 authors, 7 were from U.K., 3 from USA, 5 from Italy, 3 from India and 1 each from Brazil and Poland.

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