

Coronavirus (COVID-19): A Scientometric Study of World Research Publications

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Abstract

Background: The corona virus disease 2019 (COVID-19) outbreak originating in Wuhan, Hubei province, China, coincided with chunyun, the period of mass migration for the annual Spring Festival. To contain its spread, China adopted unprecedented nationwide interventions on January 23 2020. These policies included large-scale quarantine, strict controls on travel and extensive monitoring of suspected cases. However, it is unknown whether these policies have had an impact on the epidemic. We sought to show how these control measures impacted the containment of the epidemic.

Methods: Web of Science database was searched on February 26, 2020 for Corona virus (COVID-19) publications published between 1997 to 2020. It was performed on the same day in order to avoid the possible bias came from update on the database because the metrics are changing over time. All publication types were considered; however publications as errata were excluded. Analysis parameters include year of publication, publication type, patterns of international collaboration, research institutions, journals, impact factor, h-index, language, and times cited.

Results: A total of 12612 Corona virus (COVID-19) research publications were published across the world. The Corona virus (COVID-19) associated publications were originated from 25 countries/territories, indicating the international spread of Corona virus (COVID-19) research. The USA was the largest contributor, with 4524 articles published over 32 years, followed by Peoples R China (2667 articles). The total number of citations for these publications has already achieved 8,015, with an average of 9.01 citations per each publication. The h-index for Corona virus (COVID-19) -associated publications was 48. The USA also have the highest h-index (32), followed by KSA (26) and UK (22). Netherland produced the greatest proportion of publications with international research collaboration (72.7 %) followed by the UK (71 %) and Germany (69.1 %) out of the total number of publications for each country.

Conclusions: There is a rapid increase in research activities related to Corona virus (COVID-19) from 1989 to 2019. This study demonstrates that the Corona virus (COVID-19) related literature has grown to be more extensive and global over the past 32 years. The bulk of publications in the field of Corona virus (COVID-19) research are published by high-income countries such as the USA. Furthermore, the USA, the Peoples R China, Germany and England may have higher quality of articles according to the value of h-index.

Keywords: Scientometrics; Web of Science; Corona Virus; World Research; Publications; Coronavirus (COVID-19)

Introduction

The novel coronavirus (2019-nCoV) from Wuhan is currently causing concern in the medical community as the virus is spreading around the world.¹ Since its identification in late December 2019, the number of cases from China that have been imported into other countries is on the rise, and the epidemiologic picture is changing on a daily basis. We are reporting a case of 2019-nCoV infection acquired outside of Asia in which transmission appears to have occurred during the incubation period in the index patient. In December 2019 an outbreak of atypical pneumonia [coronavirus disease 2019 (COVID-19)] occurred in Wuhan, the capital of Hubei Province in mainland China, that was attributed to a novel coronavirus of zoonotic origin [severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)] (1, 2). The outbreak spread rapidly, with over 50,000 cases and 1,000 deaths reported domestically and 603 cases globally (3, 4), surpassing the 2003 outbreak of the severe acute respiratory syndrome (SARS) The outbreak coincided with chunyun, the annual period of mass migration for the Spring Festival holidays that was to begin on January 25, 2020. To contain the outbreak, China implemented unprecedented intervention strategies on 23 January, 2020(2). Whole cities were quarantined, the national holiday was extended, strict measures limiting travel and public gatherings were introduced, public spaces were closed and rigorous temperature monitoring was implemented nationwide. These control measures have caused significant disruption to the social and economic structure in China and globally. However, it is unknown whether these policies have had an impact, and how long they should remain in place. It is thus critical to assess the effects of these control measures on the epidemic progression for the benefit of global expectation. Here, we used a modified susceptible-exposed-infected-removed (SEIR) epidemiological model that incorporates the domestic migration data before and after January 23 and the most recent COVID-19 epidemiological data to predict the epidemic progression. We also corroborated our model prediction using a machine-learning artificial intelligence (AI) approach that was trained on the 2003 SARS coronavirus outbreak data. COVID-19 outbreak numbers reported by the National Health Commission of China were retrieved (7). Migration index based on the daily number of inbound and outbound events by rail, air and road traffic, were sourced from a web-based program (8). The 2003 SARS epidemic data between April and June 2003 across the whole of China retrieved from an archived news-site (SOHU) (9) was used for AI-training. (3).

Objectives of the study

The study aimed to:

- i. Examine the growth of Corona virus (COVID-19) research literature covered in Web of Science Citation Database for the period 1989 to 2020;
- ii. Analyze the forms used for communicating Corona virus (COVID-19) research;
- iii. Identify the language wise productivity;
- iv. Examine the subject-wise distribution of articles;
- v. To study most preferred journals;
- vi. Identify the organizational collaboration in Corona virus (COVID-19) research;
- vii. Analyze the most prolific authors in world Corona virus (COVID-19) research; and
- viii. Analyses the international linkages of Corona virus (COVID-19) research output;
- ix. Funding agencies in the field of Corona virus (COVID-19)

Review of Literature

Frshid & Somayeh (2020) have studied applied research was carried out using scientometrics methods and an analytical approach. The statistical population of this article includes 5128 Coronavirus subject area documents indexed on the WoS from 1970 to 2019. The keywords were extracted from MeSH and analyzed using Excel 2016. Data analysis showed that the highest science production was in 2005, and the highest citation number was in 2019. "Enjuanes L." is the most proliferated author, the United States, the most productive country, and the University of Hong Kong, the top organization in Coronavirus in the last half-century.

Makkizadeh F, Sa'adat F (2017) In this descriptive-analytical study with a scientometric approach, the PubMed database was searched for research publications indexed under "Infertility" over the period 2011-2015. Specific parameters were retrieved from the PubMed. Articles about infertility were analyzed regarding the journal of publication, topics, and countries using Net draw, Ucinet and RavarPreMap software. Also, the most influential topics were analyzed by indicators in the analysis of the network: closeness centrality, and between centrality Results: The growth in scientific productions the area of infertility over the mentioned period shows an upward trend with the highest growths seen in countries like the United States, the UK, Netherlands, China, and Germany. Moreover, the contents such as fertilization in vitro, adverse effects, spermatozoa, pregnancy rate, and treatment outcome were among the most frequently-used topics in the sphere

Sagar, Kademani&Bhanumurthy (2014) have analysed the Corona virus (COVID-19) publications in India during 1993-2012 based on the Web of Science database. The objective of the study was to perform a scientometric analysis of all Corona virus (COVID-19) publications by Indian scientists. The parameters studied include growth of publications and citations, domain-wise distribution of publications and citations, activity index, international collaboration, highly productive institutions, highly preferred journals, and highly cited publications.

Siwach&Parmar (2018) have studied the publication trends of CCS Haryana Agricultural University (CCSHAU) during 2001-2015. The study focussed the year-wise research output, major subject categories, national and international collaborations, top journals for publication, most prolific authors, keywords, authorship pattern, citations pattern

and highly cited paper of CCSHAU. The 15 year publication data of the university indicate that a total of 2649 paper were published from 2001-2015 receiving 15282 citation. Nearly 47% of the university research was published in ten journals and it has collaborated with many institutions at national and international level in its research publication.

Hasan& Singh (2007) have assessed the contributions of agriculture and allied fields in Himachal Pradesh, based on publications, indexed in AGRICOLA, AGRIS, CAB Abstracts and FSTA CD-ROM databases during 1990-1994. In this macroscopic study they tries to answer questions such as which institutions are carrying out the research, in which journals, in what sub-fields the contributors are strong, and so on. The paper maps the field under the following heads; quantum of production, form-wise distribution, authorship pattern, institutions, ranking of periodicals, subject dispersion, citation study, length of publications, languages of publications, languages of summaries, country-wise productivity, state wise productivity and classification by journal impact factor.

Ahila and Nagarajan have analysed the 22,065 global publications in pharmaceutical research, deriving publication data from Web of Science database during 1999-2010 (12 years). It analysis the global publication growth, share and rank of top 15 most productive countries, authorship pattern, identic action of high productive institutions and journals.

Reddy and Mahesh Kumar (2006) provided a scientometrics analysis of world papers published by 57 countries in 10 major sub – specialities appearing in three leading international journals during the ten-year period. Dotson et al. (2011) analysed changes in the authorship and characteristics of articles in pharmacy journals during the 20-year period. In the field of Bibliometrics of country output in pharmacology only a few studies have been carried out on India

Methodology

The study will analyze the research output of Corona virus (COVID-19) for the period 2008 – 2018 on several parameters. The Web of Science citation database has been used to retrieve the publications data for 32 years. The web of science is the search platform provided by Thomson Reuters. The study period 1989 – 2020 is selected as the database is available. Search string used for the data retrieval is SU = (Corona virus (COVID-19)) AND Timespan = 1989 – 2020. Database = SCSCI, A&HCI, this search criteria yielded 12,612 records.

Analysis and Results

Contribution of Corona virus (COVID-19) publications by year wise

Data on the bibliographical records were collected from the online version of web of science (WoS) pertaining to Corona virus (COVID-19) research publications from global for the period of 1989 to 2020. A total of 12,612 publications were collected, table 1 and figure 1 revels features of Corona virus (COVID-19) research. World has produced 12,612 papers and received 361839 citations. As per the web of science data the cumulative publications growth of Corona virus (COVID-19) research had increased from 385to 734. World Produced the highest number of publications in the year 2004 i.e. 782 and produced least number of publications in the year 2009 i.e. 1986. In 76 articles produced and received2736 citations

with 12.97 ACP and the highest h-index recorded in the year 2008 only i.e. 75. In 2009 produced 1992 articles received 20346 citations (with 10.21 ACP), and in 2018 produced the maximum number of articles.

Table: 1 Contribution of Corona virus (COVID-19) publications by year wise

SN	Publication Years	Publications	TC	ACP	H Index	% of 12726
1	1989	76	2732	35.95	26	0.597
2	1990	96	4211	43.86	36	0.754
3	1991	158	8139	51.51	45	1.242
4	1992	149	7006	47.02	49	1.171
5	1993	155	6763	43.63	45	1.218
6	1994	148	5114	34.55	43	1.163
7	1995	175	7249	41.42	47	1.375
8	1996	148	4949	33.44	42	1.163
9	1997	168	6585	39.2	47	1.32
10	1998	198	6414	32.39	40	1.556
11	1999	158	6511	41.21	49	1.242
12	2000	145	6500	44.83	48	1.139
13	2001	215	6211	28.89	48	1.689
14	2002	144	5730	39.79	45	1.132
15	2003	385	30020	77.97	75	3.025
16	2004	782	32285	41.23	90	6.145
17	2005	726	30363	41.82	84	5.705
18	2006	714	24744	34.61	79	5.611
19	2007	563	20647	36.54	72	4.424
20	2008	530	17468	32.83	65	4.165
21	2009	473	14984	31.75	61	3.717
22	2010	458	13122	28.59	57	3.599
23	2011	410	11245	27.36	53	3.222
24	2012	463	13326	28.78	52	3.638
25	2013	617	19138	30.97	68	4.848
26	2014	717	18540	25.89	66	5.634
27	2015	697	12826	18.43	50	5.477
28	2016	749	9479	12.64	39	5.886
29	2017	690	5751	8.33	29	5.422
30	2018	649	2907	4.48	18	5.1
31	2019	734	831	1.14	8	5.768
32	2020	236	49	0.41	3	1.854

Forms used for communicating Corona virus (COVID-19)

Table 2 illustrates the forms used for communicating of Corona virus (COVID-19) research, these includes articles published in the scholarly journals, conferences and seminars proceedings, reviews, editorial materials, book chapters, meeting abstracts etc.. The study observed that a total of 12612 publications in Corona virus (COVID-19) research output from India it has been observed from table ten are many communicating channels are used by authors to publish their research articles are used by world Corona virus (COVID-19) research literature. The majority of publications are published in Journal Articles i.e. 10358 (82.128%) followed by Reviews 1122 (8.896%) publications, 439 (3.481%) publications published in Proceedings Papers, 439 (3.481%) publications are published as Editorials Materials, 357 (2.831%) publications are published as Editorial materials, 281 (2.228%) publications are published as Meeting abstract, 234 (1.855%) publications published as letters, 115 (0.912%) publications published as Note, 83 (0.658%) publications are published as News Item, 63 (0.5%) publications published as Book Chapter, 54 (0.428%) publications published as Correction, 41 (0.325%) publications published as Early access and less than 5 of articles are published in Reprint, 3 papers as Correction addition. Also observed from the data that more than 99% of articles published in English language.

Table: 2 Forms used for communicating Corona virus (COVID-19)

Document Types	Publications	% of 12612
Article	10358	82.128
Review	1122	8.896
Proceedings paper	439	3.481
Editorial material	357	2.831
Meeting abstract	281	2.228
Letter	234	1.855
Note	115	0.912
News item	83	0.658
Book chapter	63	0.5
Correction	54	0.428
Early access	41	0.325
Reprint	5	0.04
Correction addition	3	0.024
Data paper	1	0.008
Retracted publication	1	0.008

Language-wise distribution of world Corona virus (COVID-19) research

The table 3 indicates that 97.407% (12612 publications) of the World publications in Corona virus (COVID-19) in English language, followed by French 87 (0.69%) papers, 81 (0.642%) German language publications published, Spanish 36 (0.285%) publications, Chinese 31 (0.246%) papers, Hungarian 23 (0.182%) papers, Polish 16 (0.127%) papers, Portuguese 13

(0.103%) papers, Russian 10 (0.079%) papers, Dutch and Turkies 9 (0.071%) papers, Italian 4 (0.032%) papers, Czech and Korean 2 (0.016%) papers, less than 1% of papers published in Greek, Japanese and other languages.

Table: 3 Language-wise distribution of Indian ed

Languages	Publications	% of 12612
English	12285	97.407
French	87	0.69
German	81	0.642
Spanish	36	0.285
Chinese	31	0.246
Hungarian	23	0.182
Polish	16	0.127
Portuguese	13	0.103
Russian	10	0.079
Dutch	9	0.071
Turkish	9	0.071
Italian	4	0.032
Czech	2	0.016
Korean	2	0.016
Danish	1	0.008
Greek	1	0.008
Japanese	1	0.008
Slovenian	1	0.008
Welsh	1	0.008

Distribution of Articles among Sub-Disciplines

The Corona virus (COVID-19) published during 1989 to 2020 was classified under 25 major sub-disciplines (as defined by Web of Science citation database). Table 4. Reveals that the top 25 research areas of India in the field of Corona virus (COVID-19). Virology accounted for the largest publications i.e. 3993 (31.483%) followed by Veterinary Sciences subject produced 1908 (15.044%) publications, Infectious Diseases produced 1490 (11.784%) publications, Immunology 1477 (11.646%) publications, Microbiology produced 1405 (11.078%) publications, Microbiology published 1405 (11.078%) publications, Biochemistry Molecular Biology published 1113 (8.776%) publications, and Biotechnology Applied Microbiology produced 718 (5.661%) publications, Multidisciplinary Sciences produced 581 (4.581%) publications, Medicine Research Experimental produced 569 (4.486%) publications, etc.

Table: 4 Distribution of articles among sub-disciplines

Web of Science Categories	Publications	% of 12683
Virology	3993	31.483
Veterinary Sciences	1908	15.044
Infectious Diseases	1490	11.748
Immunology	1477	11.646
Microbiology	1405	11.078
Biochemistry Molecular Biology	1113	8.776
Biotechnology Applied Microbiology	718	5.661
Multidisciplinary Sciences	581	4.581
Medicine Research Experimental	569	4.486
Medicine General Internal	436	3.438
Cell Biology	412	3.248
Pharmacology Pharmacy	409	3.225
Public Environmental Occupational Health	373	2.941
Biochemical Research Methods	353	2.783
Biophysics	311	2.452
Genetics Heredity	220	1.735
Respiratory System	213	1.679
Chemistry Medicinal	202	1.593
Pediatrics	176	1.388
Pathology	172	1.356
Biology	151	1.191
Chemistry Multidisciplinary	138	1.088
Parasitology	133	1.049
Neurosciences	131	1.033
Agriculture Dairy Animal Science	109	0.859

Major 25 Productive journals of Corona virus (COVID-19)

Table 5 reveals the top productive sources preferred by the authors of India in the field of Corona virus (COVID-19). *Journal Of Virology* first in terms of publications i.e. 1130 publications with 8.96% of total publications and followed by *Virology contributed 479 publications with 3.798%*, *Advances In Experimental Medicine And Biology* which are contributed 246 publications with 1.951%, *Emerging Infectious Diseases* produced 245 with 10096 citations **Plos One** contributed 239 with 4339 citations, *Archives Of Virology* produced 232 with 4428 citations, *Virus Research* produced 231 with 5415 citations, *Veterinary Microbiology* produced 190 with 3908 citations, *Viruses Basel* produced 170 with 1940 citations *Journal Of Virological Methods* produced 168 with 3100 citations, *Journal Of Clinical Microbiology* produced 137 with 7022 citations, *Antiviral Research* produced 133 with 2605 citations, *Journal Of Medical Virology* produced 131 with 4326 citations

Proceedings Of The National Academy Of Sciences Of The United States Of America
Produced 122 with 12867 citations published respectively.

Table: 5 Major 25 Productive journals of Corona virus (COVID-19)

Source Titles	TP	TC	ACP	H Index	% of 12612
Journal Of Virology	1130	55178	48.83	104	8.96
Virology	479	18088	37.76	66	3.80
Journal Of General Virology	276	9820	35.58	54	2.19
Advances In Experimental Medicine And Biology	246	1539	6.23	15	1.95
Emerging Infectious Diseases	245	10096	40.87	52	1.94
Plos One	239	4339	17.98	34	1.90
Archives Of Virology	232	4428	19	37	1.84
Virus Research	231	5415	23.44	37	1.83
Veterinary Microbiology	190	3908	20.46	34	1.51
Viruses Basel	170	1940	11.41	24	1.35
Journal Of Virological Methods	168	3100	18.34	29	1.33
Journal Of Clinical Microbiology	137	7022	51.26	49	1.09
Antiviral Research	133	2605	19.59	28	1.06
Journal Of Medical Virology	131	4326	32.77	37	1.04
Proceedings Of The National Academy Of Sciences Of The USA	122	12867	105.47	67	0.97
Journal Of Infectious Diseases	119	4227	35.52	38	0.94
Journal Of Clinical Virology	117	3066	26.21	33	0.93
Avian Diseases	115	2787	24.23	29	0.91
Vaccine	109	2560	23.49	29	0.86
Virology Journal	107	1966	18.37	25	0.85
Virus Genes	100	1984	19.84	24	0.79
Biochemical And Biophysical Research Communications	97	3426	35.69	35	0.77
Journal Of Biological Chemistry	91	4850	53.3	43	0.72
Nidoviruses Toward Control Of Sars And Other Nidovirus Diseases	89	369	4.15	10	0.71
Plos Pathogens	87	4234	48.67	39	0.69

Organisational-wise collaboration

Table 6 reveals the ranking of 25 top research organizations of world based on their highest research articles. According to the Web of Science database University Of Hong Kong contributed the highest publications to the field i.e. 390 publications with 10999 citations followed by National Institutes Of Health NihUsa with 312 publications

16051Utrecht University publications Indian Veterinary Research Institutewith 1186publications 312 publications with 9945 citations Centers For Disease Control Prevention USA252 publications with 12638 citations, Govind Ballabh Pant University of Agriculture Technology with 225 (6292%) publicationsChinese University Of Hong Kong University Gadvasu with 549 (2.254%) publications andTamil Nadu Agricultural Universitycontributed 473 (1.942%) publications.

Table: 6 Organisational Collaboration

Sl No	Organizations-Enhanced	TP	TC	ACP	H Index	% of 12612
1	University Of Hong Kong	517	28869	55.84	84	4.10
2	Chinese Academy Of Sciences	391	10999	28.13	55	3.10
3	National Institutes Of Health NihUsa	312	16051	51.45	69	2.47
4	University Of California System	308	14396	46.44	55	2.44
5	Utrecht University	304	15301	50.33	67	2.41
6	University Of North Carolina	260	9945	38.25	56	2.06
7	Centers For Disease Control Prevention Usa	252	12638	49.95	51	2.00
8	Chinese University Of Hong Kong	225	6292	27.96	44	1.78
9	University Of North Carolina Chapel Hill	212	8375	39.5	54	1.68
10	University Of Pennsylvania	200	6635	33.18	47	1.59
11	University Of Texas System	200	6905	34.53	48	1.59
12	University Of Iowa	198	6190	31.26	43	1.57
13	Consejo Superior De Investigaciones CientificasCsic	186	7787	38.97	48	1.48
14	Leiden University	185	11483	62.07	56	1.47
15	Nih National Institute Of Allergy Infectious Diseases Niaid	178	8605	48.34	52	1.41
16	University Of Southern California	173	9107	52.64	55	1.37
17	Johns Hopkins University	172	4752	27.63	35	1.36
18	Chinese Academy Of Agricultural Sciences	171	3022	17.67	26	1.36
19	Erasmus University Rotterdam	166	6335	37.93	40	1.32
20	University Of Toronto	165	6302	37.96	40	1.31
21	Erasmus Mc	158	10492	65.58	49	1.25
22	Ohio State University	155	4716	30.04	41	1.23
23	Centre National De La RechercheScientifiqueCnrs	148	4429	29.53	39	1.17
24	Prince Of Wales Hospital	148	4797	32.41	37	1.17
25	University Of London	146	6606	44.94	42	1.16

Table: 7 Most Prolific Authors in Corona Virus (COVID-19)

Authors	Publications	% of 12612
Yuen KY	212	1.681
Perlman S	179	1.419
Baric RS	159	1.261
Enjuanes L	159	1.261
Drosten C	147	1.166
Weiss SR	129	1.023
Woo PCY	128	1.015
Rottier PIM	125	0.991
Chan Kh	119	0.944
Lau SKP	119	0.944
Memish ZA	110	0.872
Saif LJ	110	0.872
Snijder EJ	110	0.872
Holmes KV	99	0.785
Jiang SB	97	0.769
Peiris JSM	97	0.769
Liu DX	92	0.729
Stohlman Sa	88	0.698
Denison Mr	85	0.674
Haagmans BL	83	0.658
Zhang Y	83	0.658
Lai Mmc	82	0.65
Thiel V	82	0.65
Taguchi F	81	0.642
Talbot PJ	78	0.618

Due to the interdisciplinary growth of subject, the universe of knowledge is very dynamic and is ever-growing. More and more specialization in the subjects achieved by the authors, which is a result of increased participation of group of researchers of different expertise. It has been found from earlier studies that collaboration in research varies from discipline to discipline and for the same discipline from time to time and from one country to another (Sangam, 2011). The international distribution of articles is presented in Table 8, which gives the country wise-distribution of contributions. Out of total 12612 research articles, USA contributed the highest number of research article contributing 4524 publications with (35.871%) share, followed by Germany contributed 882 publication with (6.993%) of total share, England published 782 publications with (6.2%) , Netherlands contributed 728 (5.772%) publications, Canada contributed 707 (5.606%) publications, Japan 586 (4.646%) publications and many countries are contributed with below 0.5% share with India in Corona virus (COVID-19) during 1989 to 2020.

Table: 8 International linkages of Corona virus (COVID-19)

Countries/Regions	Publications	% of 12612
USA	4524	35.871
Peoples R China	2667	21.147
Germany	882	6.993
England	782	6.2
Netherlands	728	5.772
Canada	707	5.606
Japan	586	4.646
France	567	4.496
South Korea	426	3.378
Saudi Arabia	409	3.243
Taiwan	403	3.195
Italy	361	2.862
Singapore	338	2.68
Australia	330	2.617
Spain	328	2.601
Switzerland	298	2.363
Brazil	217	1.721
Sweden	171	1.356
Belgium	160	1.269
Egypt	136	1.078
Scotland	126	0.999
India	125	0.991
Thailand	102	0.809
Poland	91	0.722
Turkey	90	0.714

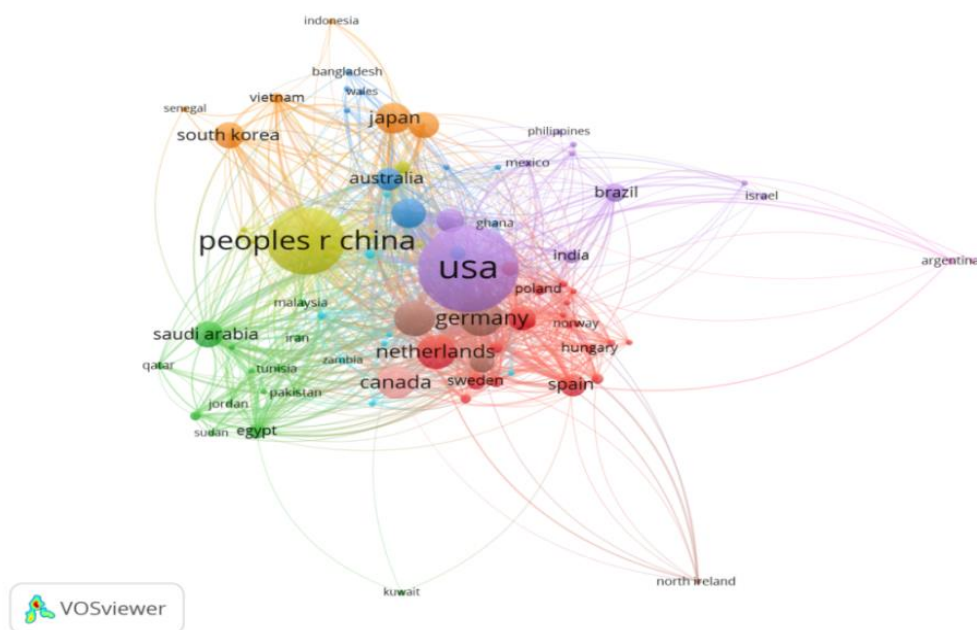


Table - 9 reveals the ranking list of top 25 highly funding Institutions in India based on their highest publications, citations, average citations per publication and h-index. According to the web of science database United States Department of Health Human Services contributed the highest publications to the field of Corona virus (COVID-19), i.e. 2192 publications, followed by National Institutes of Health Nih USA published 2146 publication (17.016 %) Nih National Institute Of Allergy Infectious Diseases NIAID produced 1082 papers National Natural Science Foundation Of China published 606 (4.805%) of papers Nih National Institute Of Neurological Disorders Stroke NINDS published 276 papers (20188%), Ministry Of Education Culture Sports Science And Technology Japan MEXT produced 161 (1.277%) European Union EU published 156 (1.237%) papers Nih National Institute of General Medical Sciences Nigms 128 (1.015%) papers and Nih National Cancer Institute Nci published **116**(0.92%) papers.

Table: 9 Top 25 Funding agencies in the field of Corona virus (COVID-19)

Funding Agencies	Publications	% of 12612
United States Department Of Health Human Services	2192	17.38
National Institutes Of Health Nih USA	2146	17.016
Nih National Institute Of Allergy Infectious Diseases NIAID	1082	8.579
National Natural Science Foundation Of China	606	4.805
Nih National Institute Of Neurological Disorders Stroke NINDS	276	2.188
Ministry Of Education Culture Sports Science And Technology Japan MEXT	161	1.277
European Union EU	156	1.237
Nih National Institute Of General Medical Sciences Nigms	156	1.237
German Research Foundation DFG	128	1.015
Nih National Cancer Institute Nci	116	0.92
United States Public Health Service	114	0.904
National Basic Research Program Of China	112	0.888
National Key Research And Development Program Of China	99	0.785
Medical Research Council Ukmrc	94	0.745
Wellcome Trust	94	0.745
Nih National Center For Research Resources Ncrr	86	0.682
Japan Society For The Promotion Of Science	83	0.658
European Commission Joint Research Centre	81	0.642
Biotechnology And Biological Sciences Research Council Bbsrc	80	0.634
Netherlands Organization For Scientific Research Nwo	75	0.595
National Science Council Of Taiwan	72	0.571
National Council For Scientific And Technological Development Cnpq	66	0.523
Canadian Institutes Of Health Research Cihir	64	0.507
Ministry Of Science And Technology China	64	0.507
University Of Hong Kong	64	0.507

Conclusion

There is a need for the hour to increase the research and development investments at institutional level. Academic institutions should take steps to create interest in research in agriculture among graduate and postgraduate students and also among young authors and scientist. Corona virus (COVID-19) research publications from global for the period of 1989 to 2020. A total of 12,612 publications were collected, table 1 and figure 1 reveals features of Corona virus (COVID-19) research. World has produced 12,612 papers and received 361839 citations. 97.407% (12612 publications) of the World publications in Corona virus (COVID-19) in English language, followed by French 87 (0.69%) papers, the top 25 research areas of India in the field of Corona virus (COVID-19). Virology accounted for the largest publications i.e. 3993 (31.483%) followed by Veterinary Sciences subject produced 1908 (15.044%) publications, Corona virus (COVID-19). Journal of Virology first in terms of publications i.e. 1130 publications with 8.96% of total publications and followed by Virology contributed 479 publications with 3.798%, University Of Hong Kong contributed the highest publications to the field i.e. 390 publications with 10999 citations followed by National Institutes of Health NihUsa with 312 publications, The highly productive authors, are listed in below table, Yuen KY they contributed 212 (1681%) publications respectively, followed by Perlman S. contributed 179 (1.419%) publications,

Twenty three years, of time period overall duty in conveyances is basically extended within the field of Coronavirus study. An exam of the Coronavirus studies output of the veterinary research is a reminder of Mean Absolute Deviation (M.A.D) of probably isolating the imaginative work within the discipline. The results showed, there is a direct relationship between the Coronavirus outbreaks and the amount of Scientific Publications in this area in the World. The quality of the researchers' productions in this area can be deliberated by scientific methods and researchers' self-citation has affected their h-index. For health care researchers, policymakers, and planners, it is necessary to be aware of the results of scientific studies of strategic and vital research areas, such as Coronavirus, to identify more appropriate therapeutic goals, make better decisions, and provide more effective solutions in the shortest time.

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