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Research performance on COVID 19 in dimensions database: with Special Reference to THE LANCET Journal

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Abstract--The coronavirus disease 2019 (COVID-19) pandemic aroused global public concern and became a major medical issue. This study aims to investigate the global research output and trends of coronavirus over the last fifty years based on the productivity. *The Lancet* is an independent, international weekly general medical journal founded in 1823 by Thomas Wakley. The *Lancet* has an Impact Factor of 79.321 and ranks second among 169 general and internal medicine journals globally. The *Lancet* Journal articles on coronavirus published from 1971 to 2021 were extracted from Dimensions Database for the study. This study aims to analyze the *Lancet* research productivity of COVID 19, Year wise publications and Citations, Top twenty five researchers, Altmetric Score for top twenty five articles and highly cited research publications. A total of 1435 coronavirus articles originated from 1061 researchers in various countries and the publications received 133294 citations. The highest number of (898 (62.58%)) articles were produced in the year 2020. The highest number of (85060 (63.81%)) citations received in the year 2020. The “Richard C Horton” has contributed highest number of (32 (2.23%)) articles and received 271 citations. The “Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China” has received the highest number of (19144, 14.36%) citations. The “Safety and efficacy of an rAd26 and rAd5 vector-based heterologous prime-boost COVID-19 vaccine: an interim analysis of a randomized controlled phase 3 trial in Russia” has received 28585 Altmetric Score. Now the entire World is facing very big problem with Coronavirus and this study focused on the research publications of COVID-19 in The *Lancet* Journal and it shows that *Lancet* has produced very good

number of research articles on COVID-19 and it has got good citations among the researchers. Now the study recommends that in this corona virus disease pandemic the funding agencies and the governments should come forward to support in funding for more research and publications to give immediate solution for this virus problem.

Keywords--Lancet Research Publications, COVID-19 Publications, Coronavirus, COVID-19.

Introduction

The Lancet began as an independent, international weekly general medical journal founded in 1823 by Thomas Wakley. Since its first issue (October 5, 1823), the journal has strived to make science widely available so that medicine can serve, and transform society, and positively impact the lives of people. The Lancet has evolved as a family of journals (across Child & Adolescent Health, Diabetes & Endocrinology, Digital Health, Gastroenterology & Hepatology, Global Health, Haematology, HIV, Infectious Diseases, Neurology, Oncology, Planetary Health, Psychiatry, Public Health, Respiratory Medicine, Biomedicine, Clinical Medicine), but retains at its core the belief that medicine must serve society, that knowledge must transform society, that the best science must lead to better lives. The Lancet manifesto is divided in three categories such as highest standards for medical science, Improving lives is the only end goal, increasing the social impact of science.⁽¹⁾ Dimensions is a next-generation linked research information system that makes it easier to find and access the most relevant information, analyze the academic and broader outcomes of research, and gather insights to inform future strategy. Developed in collaboration with over 100 leading research organizations around the world, it brings together over 128 million publications, grants, policy, data and metrics for the first time, enabling users to explore over 4 billion connections between them. Data and expertise that span the research lifecycle from Digital Science's companies ReadCube, Altmetric, Figshare, Symplectic, Digital Science Consultancy and ÜberResearch make up Dimensions.⁽²⁾ The previous studies were analyzed and found the research gap for this study and the studies are Danesh, F., & Ghavidel, S. (2020)⁽³⁾ Scientometrics studies are one of the most efficient methods of quantitative evaluation of the scientific outputs of valuable information and citation databases for understanding and observing the status of scientific publications in different subject areas. The main aim of this article was to study the 50 years of Coronavirus scientific publications in the world. This 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. 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. Shri Ram. (2020)⁽⁴⁾ Coronaviruses (CoVs) are a large family of viruses and are endemic in humans and animals, causing respiratory and intestinal infections. Coronavirus has become a challenge in China region due to its recent outbreak at the start of the year 2020. The current outbreak of coronavirus disease (COVID) has resulted in many fatalities and has forced the people of Wuhan Province in China to remain confined in their homes. Two other two forms of CoV were epidemic in 2003 when Severe Acute Respiratory Syndrome (SARS-CoV) spread in Hong Kong and Middle East Respiratory Syndrome (MERS-CoV) spread in the Middle East region. This bibliometric study is an attempt to trace the trends of research associated with "Coronavirus" for a period of 50 years using the SCOPUS database. The study was carried out using the keyword Coronavirus and analyzed for annual growth, productive countries, institutes, authors, journals, highly cited papers, and research focus using keywords. There were two peaks when a large number of publications appeared. Most of the research publications were from the USA (31.67%), and the University of Hong Kong was the most productive institute. The Journal of Virology has published the most number of articles on CoV.

Materials and Methods

The data were collected from Dimensions Database (<https://covid-19.dimensions.ai/>)⁽⁵⁾ for this study and the records related to COVID 19 were retrieved under The Lancet COVID 19 publications. A total of 1435 records and 133294 citations received for the year 1971-2021 (April 29th) were extracted and grouped into various categories such as The Lancet research productivity on COVID 19, Year wise publications, Year wise citations, Top ten researchers, highly cited research publications and Altmetric Score for top twenty five articles. These are the major objectives of the study.

1. To find out the Lancet research productivity on COVID 19.
2. To analyze the year wise publications related to COVID 19.
3. To investigate the year wise citations.
4. To identify the top ten researchers in the field of COVID 19.
5. To analyze the highly cited research publications.
6. To find out the Altmetric score for the top twenty five articles on COVID 19.

Results and Discussions

Research Productivity of COVID 19

The chart shows that "The Lancet" Research productivity of COVID 19 and the same is given in below figure. 1

The Lancet Research Productivity of COVID 19

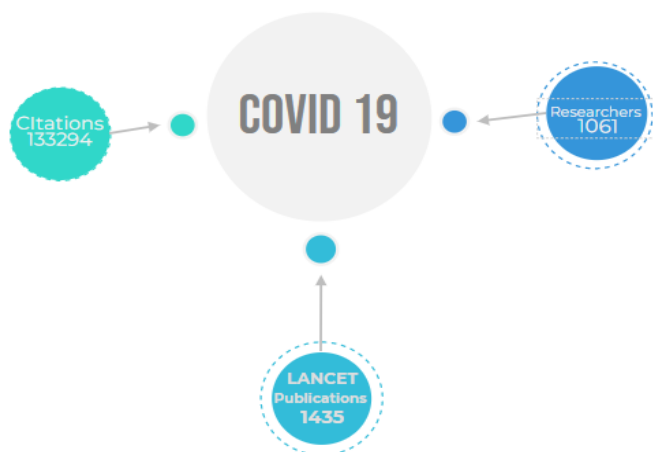


Figure.1 The Lancet Research Productivity of COVID 19

It is found that “The Lancet” has published 1435 research publications on COVID 19 and its further found that 1061 researchers has contributed research articles related to COVID 19 in “The Lancet”. It is further found that “The Lancet” COVID 19 publications are received 133294 citations.

Year wise publications

Year wise publication means the number of publications published in each year. The study is analyzed the publications by year wise and the same is given in Table.1

Table 1
Year wise publications

S. No	Year	No. of Publications	%	Rank
1	2021	342	23.83	2
2	2020	898	62.58	1
3	2019	3	0.21	11
4	2017	3	0.21	11
5	2016	6	0.42	8
6	2015	8	0.56	7
7	2014	12	0.84	6
8	2013	33	2.30	4
9	2012	3	0.21	11
10	2011	2	0.14	15
11	2010	1	0.07	19
12	2009	1	0.07	19
13	2008	4	0.28	10
14	2007	3	0.21	11

15	2006	1	0.07	19
16	2005	6	0.42	8
17	2004	29	2.02	5
18	2003	68	4.74	3
19	1993	1	0.07	19
20	1988	2	0.14	15
21	1986	1	0.07	19
22	1984	1	0.07	19
23	1981	2	0.14	15
24	1976	2	0.14	15
25	1975	1	0.07	19
26	1973	1	0.07	19
27	1971	1	0.07	19
	Total	1435	100	

Table 1 shows that year wise research publications. The 1435 research publications published in The Lancet journal during the year 1971 – 2021. It is found from table 1 that most number of Publications (898, 62.58%, Rank 1) was produced in the year 2020. It is followed by 2021 342(23.83%, Rank 2), 68(4.74% Rank 3) publications in 2003 were produced. It is further found that less number of 1 (0.07%, Rank 19) publications were produced in the year 2010, 2009, 2006, 1993, 1986, 1984, 1975, 1973 and 1971.

Year wise citations

The publication citation is the number of times that publications have been cited by other publications in the database. The study were analyzed the number of citations received in each year and same is given in Table 2

Table 2
Year wise citations

S. No	Year	No. of Citations	%	Rank
1	2021	27078	20.31	2
2	2020	85060	63.81	1
3	2019	1547	1.16	5
4	2018	1432	1.07	10
5	2017	1488	1.12	7
6	2016	1546	1.16	6
7	2015	1497	1.12	7
8	2014	1475	1.11	9
9	2013	1200	0.90	11
10	2012	848	0.64	16
11	2011	803	0.60	18
12	2010	856	0.64	16
13	2009	930	0.70	13
14	2008	888	0.67	15

15	2007	933	0.70	13
16	2006	1175	0.88	12
17	2005	1635	1.23	4
18	2004	1800	1.35	3
19	2003	710	0.53	19
20	2002	70	0.05	21
21	2001	43	0.03	22
22	2000	84	0.06	20
23	1999	45	0.03	22
24	1998	39	0.03	22
25	1997	22	0.02	25
26	1996	12	0.01	26
27	1995	9	0.01	26
28	1994	7	0.01	26
29	1993	2	0.00	34
30	1992	1	0.00	34
31	1991	9	0.01	26
32	1990	7	0.01	26
33	1989	7	0.01	26
35	1987	5	0.00	34
36	1986	4	0.00	34
37	1985	8	0.01	26
38	1984	10	0.01	26
39	1983	2	0.00	34
40	1982	1	0.00	34
42	1980	1	0.00	34
43	1979	1	0.00	34
45	1977	2	0.00	34
47	1975	1	0.00	34
49	1973	1	0.00	34
	Total	133294	100	

Table 2 demonstrate that year wise citations. The “The Lancet” COVID 19 publications are received 133294 citations during the year 1973 – 2021. It is found from table 2 that most number of citations (85060, 63.81%, Rank 1) were received in the year 2020. It is followed by 2021, 27078 (20.31%, Rank 2), 1800(1.35% Rank 3) publications in 2004 were produced. It is further found that less number of 2 (0.00%, Rank 34) publications were produced in the year 1983, 1982, 1980, 1979, 1977, 1975 and 1973.

Top Ten Researchers

The study was analyzed the “The Lancet” COVID 19 publications of Top Ten Researchers which are indexed in Dimensions database and same is shown in Table.3

Table 3
Top Ten Researchers

S. No	Name /	Organization, Country	Publications	%	Citations	%	Rank
1	Richard C Horton	-	32	2.23	271	0.20	1
2	David Lowell Heymann/	London School of Hygiene & Tropical Medicine, United Kingdom	15	1.05	2279	1.71	2
3	Kwok-Yung Yuen	University of Hong Kong, China	15	1.05	12060	9.05	2
4	Martin J Mckee	London School of Hygiene & Tropical Medicine, United Kingdom	11	0.77	288	0.22	4
5	Ziad Ahmed Memish	Emory University, United States	10	0.70	1558	1.17	5
6	Alimuddin I Zumla	University College London, United Kingdom	10	0.70	1680	1.26	5
7	Bin Cao	China-Japan Friendship Hospital, China	9	0.63	32382	24.29	7
8	Ann Danaiya Usher	-	8	0.56	41	0.03	8
9	Chen Wang	Chinese Academy of Medical Sciences & Peking Union Medical College, China	8	0.56	4816	3.61	8
10	Kwok-Hung Chan	University of Hong Kong, China	8	0.56	10943	8.21	8
	Total		1435		133294		

Table 3 indicates that top ten researchers. It is found that “Richard C Horton” has contributed highest number of (32 (2.23%)) articles and received 271 (0.20%) citations have placed first rank and its followed by “David Lowell Heymann (London School of Hygiene & Tropical Medicine, United Kingdom)” has published 15 (1.05%) articles and received 2279 (1.71%) citations have placed second rank. A good number of 9 (0.63%) research publications published by “Bin Cao (China-Japan Friendship Hospital, China)” have placed seventh rank. It is further found that “Ann Danaiya Usher”, “Chen Wang (Chinese Academy of Medical Sciences & Peking Union Medical College, China)” and “Kwok-Hung Chan (University of Hong

Kong, China has published less number of publications (8 (0.56%)) among others and placed eighth rank.

Highly Cited Research Publications

The citation indicates an intellectual reference to a published or unpublished source by quoting of a book, author or an existing publication in support of a fact. The citation for the publication will be increased when a particular article has been cited by others. The citations can be calculated for the journals, articles and others. In the study, the citation received for the highly cited research publications were analyzed and shown in Table 4.

Table 4
Highly Cited Research Publications

S. No	Name of the Article	Citations	%	Rank
1	Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China	19144	14.36	1
2	Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study	10953	8.22	2
3	Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study	9071	6.81	3
4	Genomic characterisation and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding	5077	3.81	4
5	A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster	4321	3.24	5
6	COVID-19: consider cytokine storm syndromes and immunosuppression	3954	2.97	6
7	The psychological impact of quarantine and how to reduce it: rapid review of the evidence	3366	2.53	7
8	A novel coronavirus outbreak of global health concern	2625	1.97	8
9	Endothelial cell infection and endotheliitis in COVID-19	2175	1.63	9
10	Nowcasting and forecasting the potential domestic and international spread of the 2019-nCoV outbreak originating in Wuhan, China: a modelling study	2175	1.63	10
11	Coronavirus as a possible cause of severe acute respiratory syndrome	2031	1.52	11
12	Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records	1743	1.31	12
13	Clinical progression and viral load in a community outbreak of coronavirus-associated SARS pneumonia: a prospective study	1621	1.22	13
14	COVID-19 and Italy: what next?	1485	1.11	14
15	Remdesivir in adults with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial	1478	1.11	14
16	1.5k total citations on Dimensions. High serum procalcitonin concentrations in patients with sepsis and	1475	1.11	14

	infection			
17	How will country-based mitigation measures influence the course of the COVID-19 epidemic?	1382	1.04	17
18	Global burden of childhood pneumonia and diarrhoea	1290	0.97	18
19	Clinical evidence does not support corticosteroid treatment for 2019-nCoV lung injury	1140	0.86	19
20	Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis	1098	0.82	20
21	An outbreak of severe Kawasaki-like disease at the Italian epicentre of the SARS-CoV-2 epidemic: an observational cohort study	873	0.65	21
22	Hyperinflammatory shock in children during COVID-19 pandemic	840	0.63	22
23	Effects of cholesterol-lowering with simvastatin on stroke and other major vascular events in 20 536 people with cerebrovascular disease or other high-risk conditions	836	0.63	23
24	Lung pathology of fatal severe acute respiratory syndrome	755	0.57	24
25	Epidemiology and cause of severe acute respiratory syndrome (SARS) in Guangdong, People's Republic of China, in February, 2003	752	0.56	25
	Total	133294		

Table 4 demonstrates that highly cited research publications and it is found that “Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China” has received the highest number of (19144, 14.36%) citations and placed first rank. The article “Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study” has got the second highest number of (10953, 8.22%) citations. It is followed by “COVID-19: consider cytokine storm syndromes and immunosuppression” has placed sixth rank for its citation 3954 (2.97%). The article “Epidemiology and cause of severe acute respiratory syndrome (SARS) in Guangdong, People's Republic of China, in February, 2003” has been placed twenty fifth rank, since it got least citation (752, 0.56%) among other articles.

Altmetric Score for Top Twenty Five articles

The findings of research should be available for research community in order to investigate further in the field. The Research findings should enable others to access the content. When an article is being accessed by others will create more visibility and increase the citations. In this study, the articles which got the highest altmetric score were analyzed and shown in Table.5

Table 5
Altmetric Score for Top Twenty Five articles

S. No	Name of the Article	Altmetric Score	Rank
1	Safety and efficacy of an rAd26 and rAd5 vector-based heterologous prime-boost COVID-19 vaccine: an interim analysis of a randomized controlled phase 3 trial in Russia	28585	1
2	Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis	24022	2
3	RETRACTED: Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis	23048	3
4	Retraction—Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis	20353	4
5	Safety and immunogenicity of the ChAdOx1 nCoV-19 vaccine against SARS-CoV-2: a preliminary report of a phase 1/2, single-blind, randomised controlled trial	15608	5
6	Ten scientific reasons in support of airborne transmission of SARS-CoV-2	15137	6
7	Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China	14365	7
8	Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study	13228	8
9	Safety and efficacy of the ChAdOx1 nCoV-19 vaccine (AZD1222) against SARS-CoV-2: an interim analysis of four randomised controlled trials in Brazil, South Africa, and the UK	12337	9
10	Remdesivir in adults with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial	12025	10
11	Safety and immunogenicity of an rAd26 and rAd5 vector-based heterologous prime-boost COVID-19 vaccine in two formulations: two open, non-randomised phase 1/2 studies from Russia	11165	11
12	6-month consequences of COVID-19 in patients discharged from hospital: a cohort study	10684	12
13	Scientific consensus on the COVID-19 pandemic: we need to act now	10565	13
14	Prevalence of SARS-CoV-2 in Spain (ENE-COVID): a nationwide, population-based seroepidemiological study	9995	14
15	Sputnik V COVID-19 vaccine candidate appears safe and effective	8899	15
16	Resurgence of COVID-19 in Manaus, Brazil, despite high seroprevalence	8199	16
17	Offline: COVID-19 and the NHS—“a national scandal”	8103	17
18	Reviving the US CDC	7987	18
19	Clarifying the evidence on SARS-CoV-2 antigen rapid tests in public health responses to COVID-19	7553	19
20	Assessment of protection against reinfection with SARS-CoV-2 among 4 million PCR-tested individuals in Denmark in 2020: a population-level observational study	7416	20
21	Safety, tolerability, and immunogenicity of a recombinant adenovirus type-5 vectored COVID-19 vaccine: a dose-escalation, open-label, non-	6998	21

	randomised, first-in-human trial		
22	An outbreak of severe Kawasaki-like disease at the Italian epicentre of the SARS-CoV-2 epidemic: an observational cohort study	6980	22
23	School reopening without robust COVID-19 mitigation risks accelerating the pandemic	6906	23
24	The psychological impact of quarantine and how to reduce it: rapid review of the evidence	6327	24
25	Safety and immunogenicity of ChAdOx1 nCoV-19 vaccine administered in a prime-boost regimen in young and old adults (COV002): a single-blind, randomised, controlled, phase 2/3 trial	5921	25

Table 6 shows that Altmetric Score for top twenty five articles. It is found that “Safety and efficacy of an rAd26 and rAd5 vector-based heterologous prime-boost COVID-19 vaccine: an interim analysis of a randomized controlled phase 3 trial in Russia” article has got 28585 altmetric score and placed in first rank. It is followed by the article “Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis” has been placed second rank with Altmetric score of 24022. The article “Remdesivir in adults with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial” has found with 12025 altmetric score and placed in tenth rank. It is further found that “Safety and immunogenicity of ChAdOx1 nCoV-19 vaccine administered in a prime-boost regimen in young and old adults (COV002): a single-blind, randomised, controlled, phase 2/3 trial” has got less score of 5921 among other articles and placed in twenty fifth rank.

Conclusion

Now the entire World is facing very big problem with Coronavirus and this study focused on the research publications of COVID-19 in The Lancet Journal and it shows that Lancet has produced very good number of research articles on COVID-19 and it has got good citations among the researchers. Now the study recommends that in this corona virus disease pandemic the funding agencies and the governments should come forward to support in funding for more research and publications to give immediate solution for this virus problem.

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