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Will Covid-19 be cured? – A prediction through Bibliometric Analysis

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Abstract

December 2019 witnessed an outbreak of pneumonia, which was declared by WHO as a pandemic and named COVID-19. Scientists from various nations are working on the identification of cause and eradication of this pandemic. The present investigation is an attempt to foresee the time of eradication of this virus using bibliometric tools and techniques. Data was downloaded from Web of Science database for the year 2020 in the first week of September 2020. The number of downloaded records was 12056 publications which were limited to the year 2020 and document type article and early access. The trend of covid research showed a growth pattern from January 2020 to August 2020. At the same time the relative growth rate has a growth till July 2020 and then declining trend in August 2020. This trend prevails in most of the countries of the world except some of the European countries. This is an indication that the researchers are on the last step of finding a vaccine for this virus. Most of the high productive authors are from China. The ranking of authors according to their specialization/prepotence index suggested by Kumaravel shows a different listing of authors. USA has the highest productivity followed by China and Italy. India is in the fifth place. The Price index for five years is calculated to be 70.44%. Nearly 35 per cent of the publications fall under the purview of Price's immediacy effect.

Keywords: COVID-19, bibliometric analysis, eradication

INTRODUCTION

Coronaviruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). The present novel corona virus (nCoV) is a new strain that has not been previously identified in humans. This has been identified in December 2019 in Wuhan City, Hubei Province of China. The World Health Organization (WHO) declared the outbreak of this pandemic as a public health emergency of international concern. WHO named the disease a novel coronavirus as "COVID-19", which is a short form of "coronavirus disease 2019" on February 11, 2020.

The covid-19 is affecting 213 countries and territories of the world. This COVID-19 pandemic has resulted in many casualties. As a result, the scientific communities all over the world are keenly engaged in Research to find out a cure for this deadly covid-19. Hence there is an enormous growth of scholarly literature on the subject covid-19. This investigation is an attempt to analyse the trend of corona virus research in various countries of the world.

RELATED STUDIES

Though the origin of Corona virus dates back in 1940's, Covid-19 is of recent origin in December 2019 In Wuhan City, China. Haider N (2020) et al[1], found that the novel Coronavirus (2019-nCoV [SARS-COV-2]) was detected in humans during the last week of December 2019 at Wuhan city in China, and caused 24 554 cases in 27 countries and territories as of 5 February 2020. The main objective of their study was to estimate the risk of transmission of 2019-nCoV through human passenger air flight from four major cities of China (Wuhan, Beijing, Shanghai and Guangzhou) to the passengers' destination countries.

[1] Haider N et al. (2020). Passengers' destinations from China: low risk of Novel Coronavirus (2019-nCoV) transmission into Africa and South America. Epidemiology and Infection Vol. 148 (e41). Pp. 1–7..

Yue Gong et al (2020)[2] was found that since the outbreak and global spread of COVID-19, researchers worldwide have embarked on intense research efforts, and the number of publications on COVID-19 has shown an increasing trend, with fluctuations, over time. The number of Chinese articles published was larger than that of English articles, especially after the middle of February, by more than 2.5 times. This may be because China was the most severely affected country in the early stages of the pandemic.

Hossain MM.(2020)[3] reports that there is a lack of research that may inform the preventive measures like vaccinations, pharmacological interventions, clinical prognosis, and outcomes of COVID-19. Also existing literature mentions little about the psychosocial and economic consequences of COVID-19.

Jingchun Fan et al (2020)[4] found that of the authors and institutions of the papers were from China before March 1st, 2020. The distribution of authors and institutions were mainly in developed countries or more wealthy areas of China. The range of the keywords in English publications was more extensive than those in Chinese. Traditional Chinese Medicine was seen more frequently in Chinese papers than in English.

Fei Zhai et al (2020)[5] reports that China and the United States have contributed the most coronavirus studies, Hong Kong University being the top contributor. Regarding journals, the Journal of Virology has contributed the most, while in terms of researchers, Yuen Kwok Yung has made the most contributions.

Vasantha Raju, N and Patil, S B. (2020)[6] found that there is a considerable and constant growth of Indian publications on COVID-19 from mid-April. It is interesting to note that, the most prolific authors belong to either AIIMS or ICMR institutes. Delhi state contributed highest number of publications on COVID-19. The

[2] Yue Gong et al (2020). Early Research on COVID-19: A Bibliometric Analysis. The Innovation 1. https://doi.org/10.1016/j.xinn.2020.100027

[3] Hossain MM.(2020). Current status of global research on novel coronavirus disease (COVID-19): a bibliometric analysis and knowledge mapping [version 1; peer review: 2 approved with reservations] F1000Research 2020, 9:374. https://doi.org/10.12688/f1000research.23690.1

[4] Jingchun Fan et al (2020). Bibliometric Analysis on COVID-19: A Comparison of Research Between English and Chinese Studies. Front. Public Health 8:477. doi: 10.3389/fpubh.2020.00477

[5] Fei Zhai et al (2020). Research Progress of Coronavirus Based on Bibliometric Analysis. International Journal of Environmental Research and Public Health 2020, 17, 3766; doi:10.3390/ijerph17113766

[6] Vasantha Raju, N and Patil, S B. (2020). Indian Publications on SARS-CoV-2: A bibliometric study of WHO COVID-19 database. Diabetes & Metabolic Syndrome: Clinical Research & Reviews Vol.14. Pp. 1171-1178

AIIMS, New Delhi was the most productive institution in terms of publications. The Indian Journal of Medical Research has emerged as the productive journal contributing highest number of the publications. In terms of research area, the majority of the publications were related to Epidemiology.

Zyoud and Al-Jabi (2020)[7] reported that USA published the largest number of publications on COVID-19 (4479; 23.4%), followed by China (3310; 17.4%), Italy, (2314; 12.2%), and the UK (1981; 10.4%). British Medical Journal was the most productive. The Huazhong University of Science and Technology, Tongji Medical, and Harvard Medical School were the institutions that published the largest number of COVID-19 research.

Xingjia Mao, MS et al (2020)[8] found that USA made the highest contributions to the global research in Covid-19 with the most total number of publications, total citation frequency, and the highest H-index, while Netherlands had the highest average citation per item. Journal of Virology had the largest publication numbers. The University of Hong Kong is the most contributive institution with the most publications.

METHODS

An author keyword search was made in Web Of Science database using the keyword "Covid-19" or "Covid 19" on 30th August 2020. This resulted in 12056 publications which were limited to the year 2020 and document type article and early access. There was only one paper published in 2019. The data was downloaded in September first week with the period of coverage January 2020 to August 2020. The result was 8899 research papers. This data was analysed using a self designed software to identify the trend of research, authorship pattern, country of publication, core journals and high productive authors.

[7] Zyoud and Al-Jabi (2020). Mapping the situation of research on coronavirus disease-19 (COVID-19): a preliminary bibliometric analysis during the early stage of the outbreak. BMC Infectious Diseases (2020) 20:561. https://doi.org/10.1186/s12879-020-05293-z

[8] Xingjia Mao, MS et al (2020). The status and trends of coronavirus research: A global bibliometric and visualized analysis. Medicine. Vol.99 (22). P.e20137.

DISCUSSION

Table 1 Trend of Covid-19 research

Year	Publications	Percent	RGR	Cases	RGR
JAN '20	86	0.97		11959	
FEB	14	0.16	-83.72	88422	6.39
MAR	147	1.65	950.00	941042	9.64
APR	614	6.90	317.69	3269971	2.47
MAY	1271	14.28	107.00	6216855	0.90
JUN	1964	22.07	54.52	10540016	0.70
JUL	2402	26.99	22.30	17441471	0.65
AUG	1705	19.16	-29.02	25653664	0.47

RGR – Relative Growth Rate

A total of 8899 research articles are taken for study excluding letters, reports, reviews, editorials etc. The covid-19 is identified as a pandemic in December 2019 and hence those research papers published after 2019 were considered. WHO[9] reports that, mortality for COVID-19 appears higher than for influenza, especially seasonal influenza. Unlike other previous medical emergencies like swine flu, Spanish flu, H1N1 influenza virus etc, Covid-19 pandemic is a severe one spreading fast with more casualties and hence research in this area has become the necessity of the day. Table 1 shows the trend of research in Vovid-19 from January 2020 to December 2020. Web of Science marks those papers that are accepted and to be published in future editions of the journals as early access and hence some of the papers that are to be published in September, October, November and December 2020 are taken for the study. There are 86 (0.97%) publications in January 2020 and 14(0.16%) papers in February. Research in Covid-19 gained momentum from March onwards and the peak is in July 2020 with sudden decrease I August 2020. Even if the papers to be published in September to December are considered to be published in August 2020, the total publications in August 2020 is 1705 (19.16%) which is far less than the publications in July 2020 (2402 – 26.99%). The relative growth rate of publications has a sudden downfall in August 2020. Similarly the covid -19 cases are also increasing from February 2020 to March 2020 and then from April 2020 onwards, there is a gradual decline. Genetics professor

[9] https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/q-a-similarities-and-differences-covid-19-and-influenza?gclid=EAIaIQobChMIzMSDl_rV6wIV2g0rCh11ZgJiEAAYASAAEgJy0fD_BwE

Eduardo Rodríguez Bejarano[10], who heads the Genetics department at Malaga university, says it is "too easy" to come to erroneous conclusions. Not that his skepticism stops him being optimistic: "There will come a time when it is controlled. **Every pandemic in history has disappeared in the end**. What we are trying to do now is reduce the amount of damage it causes as much as possible," he says. Also he believes Covid-19 will lose strength. The present study also shows a declining trend in publications as well as the corona cases.

Table 2 High Productive countries

Country	Publications	Percent
USA	1847	20.76
Peoples r china	1343	15.09
Italy	827	9.29
England	477	5.36
India	436	4.90
Spain	321	3.61
Germany	260	2.92
Canada	225	2.53
Australia	213	2.39
Iran	212	2.38
France	205	2.30
Turkey	196	2.20
Brazil	168	1.89
South korea	138	1.55
Japan	101	1.13
Pakistan	99	1.11
Singapore	94	1.06
Saudi arabia	87	0.98
Poland	77	0.87
Belgium	66	0.74

Research findings are published by scholars from 125 countries of the world of which USA has the highest share of nearly one fifth (20.76%) of the total world publications. The second productive country is China (15.09%) followed by Italy (9.29%) and England (5.36%). India is in the fifth position with 4.96 per cent of world productivity. From the table, it is clear that nearly 50 per cent of the publications are from four countries and the rest are from 120 countries, of which, India has the lead.

[10] http://www.surinenglish.com/lifestyle/202005/08/virus-will-become-less-20200508102530-v.html

Table 3 Cases of covid-19[11] and research productivity in ten high productive countries

Country (Cases/RGR)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Wolrd Cases	11959	88422	941042	3269971	6216855	10540016	17441471	25653664
Growth Rate		6.39	9.64	2.47	0.90	0.70	0.65	0.47
World Publications	85	14.00	146.00	611.00	1261.00	1958.00	2395.00	1699.00
Growth Rate		-0.84	9.43	3.18	1.06	0.55	0.22	-0.29
USA cases	7	70	188461	1075637	1799005	2653243	4571482	6044815
Growth Rate		9.00	2691.30	4.71	0.67	0.47	0.72	0.32
USA Publications	5	0.00	21.00	109.00	261.00	431.00	565.00	405.00
Growth Rate		-1.00	0.00	4.19	1.39	0.65	0.31	-0.28
PEOPLES R CHINA cases	11901	79972	82690	84388	84597	85263	88301	90402
Growth Rate		5.72	0.03	0.02	0.00	0.01	0.04	0.02
China Pubs	24	5.00	45.00	140.00	198.00	279.00	326.00	227.00
Growth Rate		-0.79	8.00	2.11	0.41	0.41	0.17	-0.30
ITALY cases	2	1128	105792	205463	232997	240578	247537	269214
Growth Rate		563.00	92.79	0.94	0.13	0.03	0.03	0.09
Italy Pubs	7	0.00	6.00	19.00	65.00	105.00	150.00	139
Growth Rate		-1.00	0.00	2.17	2.42	0.62	0.43	-0.27
ENGLAND cases	2	23	25521	171253	274762	312654	303181	335873
Growth Rate		10.50	1108.61	5.71	0.60	0.14	-0.03	0.11
England Pubs	3	0.00	5.00	63.00	135.00	175.00	214.00	139.00
Growth Rate		-1.00	0.00	11.60	1.14	0.30	0.22	-0.35
INDIA cases	1	6	1397	33610	182143	566840	1638870	3621245
Growth Rate		5.00	231.83	23.06	4.42	2.11	1.89	1.21
India Pubs	3	0.00	4.00	36.00	60.00	97.00	131.00	81.00
Growth Rate		-1.00	0.00	8.00	0.67	0.62	0.35	-0.38
SPAIN cases	1	81	111541	216216	239429	249271	288522	470973
Growth Rate		80.00	1376.05	0.94	0.11	0.04	0.16	0.63
Spain Pubs	0	0.00	4.00	13.00	45.00	64.00	84.00	77.00
Growth Rate		0.00	0.00	2.25	2.46	0.42	0.31	-0.08
GERMANY cases	0	66	61913	159119	181482	194259	208698	242381
Growth Rate		.	937.08	1.57	0.14	0.07	0.07	0.16
Germany Pubs	2	0.00	1.00	15.00	32.00	74.00	67.00	45.00
Growth Rate		-1.00	0.00	14.00	1.13	1.31	-0.09	-0.33
CANADA cases	3	20	8591	53236	90946	104204	116312	128948
Growth Rate		5.67	428.55	5.20	0.71	0.15	0.12	0.11
Canada Pubs	3	1.00	4.00	8.00	32.00	61.00	63.00	44.00
Growth Rate		-0.67	3.00	1.00	3.00	0.91	0.03	-0.30
IRAN cases	0	593	44606	94640	151466	227662	304204	375212
Growth Rate			74.22	1.12	0.60	0.50	0.34	0.23
Iran pubs	1	0.00	10.00	26.00	16.00	43.00	48.00	33.00
Growth Rate		-1.00	0.00	1.60	-0.38	1.69	0.12	-0.31
FRANCE cases	0	100	52128	129581	151753	164801	187919	281025
Growth Rate			520.28	1.49	0.17	0.09	0.14	0.50
France Pubs	1	0.00	3.00	7.00	38.00	67.00	41.00	43.00
Growth Rate		-1.00	0.00	1.33	4.43	0.76	-0.39	0.05

A close look at the trend (Relative Growth Rate) of covid-19 research productivity and cases in various countries of the world shows the following results

- The RGR of Covid cases in the world shows an increasing trend from February 2020 to March 2020 and later there is a decline. The publications also show a grown rate initially and decline in the later period.
- As regards to USA, England, India, Canada and Iran the same trend prevails in covid cases as well as publications

[11] https://coronavirus.1point3acres.com/en

- In China there is decline in RGR of covid cases as well as publications from February onwards and then decline from March 2020
- Italy shows a decrease in RGR of covid cases till July 2020 and then there is increase in August 2020. The publications have an increase in RGR in April and May 2020 and then there is decrease
- Spain, Germany and France show a decrease in RGR of covid cases from April till July 2020 and then there is increase in August 2020. The publications have an increase in RGR in April and May 2020 and then there is decrease
- To sum up it can be seen that in most of the European countries there is decline in RGR of covid cases as well as covid related publications till July 2020 and again there is a small increase in August 2020. Other than European countries, there is a decline in RGR of covid cases as well as publications after July 2020.

Table 4 Ranked list of high prolific authors

Author Name	Total Publication Count	Count	Rank
Wang, Jing	18	China	1
Zhang, Wei	15	China	2
Hsueh, Po-Ren	13	Taiwan	3
Li, Wei	13	China	3
Wang, Ying	13	China	3
Lippi, Giuseppe	12	Italy	4
Liu, Lei	12	China	4
Liu, Jing	12	China	4
Liu, Ying	12	China	4
Wang, Hui	12	China	4
Kumar, Sanjeev	11	India	5
Zhao, Shi	11	China	5

Wang, Jing is the highest productive author having 18 publications followed by Zhang, Wei from China having 15 publications (Table 4). There are three authors namely Hsueh, Po-Ren from Taiwan, Li, Wei from China and Wang, Ying from China are in the third place. Kumar, Sanjeev from All India Institute of Medical Science, New Delhi, India has 11 publications and is in the fifth position. Here it is to be noted that among the 12 top five ranked authors, 9 are from China one from Taiwan, Italy and India each. This enables to

conclude that since the Covid-19 has started its origin in China, there are more scholars in this field from China.

Table 5 High prolific authors by positional share method

Author	Count	Positional Value	Rank	Country
Elfiky, Abdo A.	5	4.10	139	Egypt
Lippi, Giuseppe	12	3.94	6	Italy
Suwanwongse, Kulachanya	5	3.33	189	USA
Kutlu, Omer	6	2.96	96	USA
Zhao, Shi	11	2.82	12	China
Gautam, Sneha	6	2.59	87	India
Wang, Jing	18	2.52	1	China
Cook, T. M.	5	2.29	134	England
Li, Wei	13	2.01	4	China
Kumar, Sanjeev	11	1.86	11	India
Liu, Ying	12	1.82	9	China
Tursen, Umit	7	1.73	77	Turkey
Chen, Ying	6	1.72	82	China
Shabarek, Nehad	5	1.67	197	USA
Zhang, Hong	8	1.62	47	China
Lai, Chih-Cheng	5	1.57	167	Taiwan
Buonsenso, Danilo	8	1.56	44	Italy
Rathore, Puneet	8	1.56	42	India
Xu, Jing	7	1.52	71	China
Zhang, Wei	15	1.48	2	China

In any collaborative research, all the collaborating authors do not equally share the research work. The effort put by each scholar varies and the quantum of effort is mostly represented by their position in the line of authors for a specific publication. Based on this Kumaravel et al (2012)[12] has proposed a formula for assigning the weightage for each author in a collaborative publication. The formula is

$$PV = (n - p + 1) / n\sum \quad \text{where } n\sum = 1+2+3+ \ldots n \quad \text{and } PV \leq 1$$

Where PV = Positional value; n = total number of authors; and p = Position of the name in the line of authors ($p \leq n$).

[12] Kumaravel, J.P.S., A. Manoharan, B. Kanagavel, M. Karthi Rajan and L. Mohamed Idhris. (2012). "Dr. S. R. Ranganathan's Canon of Prepotence applied to Bibliometrics leading to a new indicator - Prepotency index (PI)." Paper presented at 8th International Conference on *Webometrics, Informetrics and Scientometrics (WIS)* and 13th *COLLNET Meeting* in Seoul, Korea, October 23-26, 2012

For example, the potency of each author in a work by 5 authors, can be calculated as

1st Position = (5 -1 +1) / 5∑ = 5 / (1+2+3+4+5) = 5 / 15 i.e 0.33
2nd position = (5 -2 +1)/5∑ = 4/15 i.e 0.26
3rd position = (5 -3 +1)/5∑ = 3/15 i.e 0.2
4th position = (5 -4 +1)/5∑ = 2/15 i.e 0.13
5th position = (5 -5 +1)/5∑ = 1/15 i.e 0.06

This ranking of authors gives a new sequencing where Elfiky, Abdo A and Suwanwongse, Kulachanya contributing 5 papers each and who are in the 139th and 189th rank are brought to the first and third rank respectively. Wang, Jing who has the highest publication count of 18 papers is placed in the 7 place. It can be seen that the number of publications by an author is not the only deciding factor for ranking of the authors. In addition to this Kumaravel has also proposed an index which shows how far a scholar is specializing in a specific subject area and this is termed as Prepotence index. The formula for PI is PV/N where N is the total number of publications by the author.

The value of PI ranges from 0 to 1. The PI value nearer to 1 indicates the higher involvement of the author in most of his collaborative publications. The PI value nearer to zero indicates that the author has less involvement in majority of his collaborative publications. From this index, the potential or specialisation of an author in a subject can be measured. Table 6 shows the name of the authors ranked according to their specialization in the subject.

Table 6 Ranking of authors by Specialisation/Prepotency index

Author	Count (N)	Positional Value	Original Rank according to number of publications	PI = PV/N
Elfiky, Abdo A.	5	4.10	139	0.82
Suwanwongse, Kulachanya	5	3.33	189	0.67
Kutlu, Omer	6	2.96	96	0.49
Cook, T. M.	5	2.29	134	0.46
Gautam, Sneha	6	2.59	87	0.43
Shabarek, Nehad	5	1.67	197	0.33
Lippi, Giuseppe	12	3.94	6	0.33
Lai, Chih-Cheng	5	1.57	167	0.31
Jung, F.	5	1.47	153	0.29
Chen, Ying	6	1.72	82	0.29
Prasad, Aman	5	1.33	181	0.27
Zhao, Shi	11	2.82	12	0.26
Tursen, Umit	7	1.73	77	0.25
Li, Yang	6	1.36	101	0.23
Xu, Jing	7	1.52	71	0.22
Rezaei, Nima	7	1.45	63	0.21

Conversano, Ciro	5	1.03	138	0.21
Zhang, Hong	8	1.62	47	0.20
Istvan, Laszlo	5	0.98	141	0.20
Buonsenso, Danilo	8	1.56	44	0.19

From the table 6 it is clear that the scholars who have published less number of papers have more specialization value. Elfiky, Abdo A. who is in the 139th rank has published 5 papers of which, in four of them he is the first author. Similarly Suwanwongse, Kulachanya who is in the 189th rank having 5 papers to his credit has published 3 papers where his name is rendered in the first place. It is noteworthy to note that the first ranked Wang, Jing who has published 18 papers has less specialization value of 0.14 since, in most of his publications his name is not in the first or second position.

Table 7 Authorship pattern

No of Authors	Publications	Percent
Anonymous	6	0.07
1	980	11.01
2	1215	13.65
3	1119	12.57
4	1023	11.50
5	849	9.54
6	661	7.43
7	583	6.55
8	520	5.84
9	353	3.97
10	318	3.57
11	215	2.42
12	205	2.30
13	128	1.44
14	128	1.44
15	97	1.09
16	70	0.79
17	75	0.84
18	49	0.55
19	29	0.33
20	29	0.33
More than 20	247	2.78
	8899	100.00

Research papers in the field of Covid-19 research are published by single author to a maximum of 139 authors. Maximum publications (13.65%) are by joint/two authors and it is found that as the number of authors increases above two the number of publications decreases.

This shows that the optimum number of authors for a publication in the field of Covid-19 is 2 to 3.

Table 7 Age of the references

Year	Age	References	Percent
2020	0	124756	48.77
2019	1	15373	6.01
2018	2	12189	4.76
2017	3	10653	4.16
2016	4	9402	3.68
2015	5	7908	3.09
2014	6	6933	2.71
2013	7	6298	2.46
2012	8	5494	2.15
2011	9	5056	1.98
2010	10	4925	1.93
Earlier to 2020	10++	46820	18.30
		255807	100.00

As regards to referencing pattern, it is seen that nearly 50 per cent of the references are to the current year and 70.47 per cent of the references belong to the age of less than 5 years. The price index[13] can be calculated as PI = 70.44.

Table 8 Number of citations

Citations	Publications	Percent
0	5783	64.98
1	1155	12.98
2	494	5.55
3	293	3.29
4	170	1.91
5	153	1.72
6	95	1.07
7	90	1.01
8	59	0.66
9	56	0.63
10	47	0.53
More than 10	504	5.66
	8899	100.00

The number of citations to the publications on Covid-19 during 2020 shows interesting results. The number of papers without citations is 5783 (64.98%). The remaining nearly 35 per cent of the publications

[13] Wildgaard, L., Schneider, J.W. & Larsen, B. (2014) A review of the characteristics of 108 author-level bibliometric indicators. *Scientometrics* **101,** 125–158 (2014). https://doi.org/10.1007/s11192-014-1423-3

have one or more number of citations. This attests the sayings of). Stephen cole, Jonathan R Cole and Lorraine Dietrich (1978)[14] that "*Rapid incorporation and a corresponding high immediacy of citations is an indicator of the extent to which a science is growing in a cumulative fashion. The extent to which a recent work is utilized in a current research may thus be seen as an indicator of the presence of the conditions necessary for rapid scientific advance".*

CONCLUSION

The two preceding instances of emergence of coronavirus disease in the past 18 years — SARS (2002 and 2003) and Middle East respiratory syndrome (MERS) (2012 to the present) — the Covid-19 outbreak has posed critical challenges for the public health, research, and medical communities. China, the United States, and most of the countries of the world are taking preventive measures to restrict the spread of covid-19 as well as to find a vaccine for this viral disease. The day is not far off to find a vaccine or to increase the immunity of humans since the bibliometric study has shown a declining trend relative growth of in covid-19 cases as well as research publications.

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