

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Library Philosophy and Practice (e-journal)

Libraries at University of Nebraska-Lincoln

Winter 11-2-2020

Research output on Corona virus (Covid-19) /Hantavirus in India:A Scientometric Study

Senthamilselvi .. A. Asst.Professor

Holy Cross College,(Autonomous),Tiruchirappalli-620002, selviravi2011@gmail.com

Surulinathi .. M Asst.Professor

Bharathidasan University,Tiruchirappalli, surulinathi@gmail.com

karthik .. M Research Scholar

Bharathidasan University, Tiruchirappalli, assenthamil@gmail.com

Jeyasuriya .. T Student

Bharathidasan University,Tiruchirappalli, suryanathi@gmail.com

Follow this and additional works at: <https://digitalcommons.unl.edu/libphilprac>

 Part of the [Library and Information Science Commons](#)

A., Senthamilselvi .. Asst.Professor; M, Surulinathi .. Asst.Professor; M, karthik .. Research Scholar; and T, Jeyasuriya .. Student, "Research output on Corona virus (Covid-19) /Hantavirus in India:A Scientometric Study" (2020). *Library Philosophy and Practice (e-journal)*. 4539.

<https://digitalcommons.unl.edu/libphilprac/4539>

Research output on Coronavirus (Covid-19)/ Hantavirus in India: A Scientometric Study

Senthamilselvi, A. Assistant Professor/Librarian
Department of Library and Information Science,
Holy Cross College,(Autonomous),Tiruchirappalli-620002,India

Surulinathi, M., Assistant Professor,
Bharathidasan University, Tiruchirappalli-620 024, India

Karthik, M., Research Scholar,
Bharathidasan University, Tiruchirappalli-620 024, India

Jayasuriya, T., Final Year MLIS,
Bharathidasan University, Tiruchirappalli-620 024, India

Abstract

This paper attempts to highlight the publication status and growth of Hantavirus/Coronavirus research in India and make quantitative and qualitative assessment by way of analysing various features of research output based on Scopus online database during the period 1975-2020. A total of 3498 publications were published and overall H-Index is 50. The publications peaked in the year 2020 with 3218 publications and most frequently cited one is “Rodriguez-Morales, A.J., Cardona-Ospina, J.A., Gutiérrez-Ocampo, E., Ahmad, T., Sah, R.. (2020) Clinical, laboratory and imaging features of COVID-19: A systematic review and meta-analysis, Travel Medicine and Infectious Disease 34,101623 with 293 citations. The USA topped the list with highest share (374) of publications. United Kingdom with 212 share of publications followed by China with 154 share of publications, Thailand with 119 share of publications, Australia and Italy with 101 share of publications respectively in the context of international collaboration. All India Institute of Medical Sciences, New Delhi topped the list with 246 publications, followed by Postgraduate Institute of Medical Education & Research, Chandigarh with 178 publications, Dr. D.Y. Patil Vidyapeeth Deemed University, Pune with 108 publications. 160 Institutes are with minimum of 10 Publications 12 Institutes. The highly productive journals are: Diabetes And Metabolic Syndrome Clinical Research and Reviews(Elsevier) with 100 publications (CiteScore-2.6, SJR-0.672 and SNIP-0.982), Asian Journal Of Psychiatry(Elsevier) with 92(CiteScore-2.7, SJR-0.736 and SNIP-1.022); Indian Journal Of Ophthalmology(Wolters Kluwer Health)(CieScore-1.6, SJR-0.482 and SNIP-0.931) and Journal Of Biomolecular Structure And Dynamics with 80 publications respectively. The parameters studied include: year-wise growth of publications and citations, country-wise Collaboration of publications, domain-wise distribution of publications and highly productive institutes, highly cited publications and highly preferred journals for publications by scientists.

Keywords: Scientometrics; Hantavirus; Coronavirus; Covid-19; Bibliometrics

INTRODUCTION

Scientometrics is a discipline which analyses scientific publications and citations appended to the papers to gain an understanding of the structure of science, growth of science at

global level, performance of a country in a particular domain, performance of institutions, departments/divisions and scientific eminence of an individual scientist. It also helps in knowing the information seeking behaviour of scientists by way of identifying where they publish and what they cite.

HANTAVIRUS/CORONAVIRUS: BACKGROUND NOTE

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness. The best way to prevent and slow down transmission is be well informed about the COVID-19 virus, the disease it causes and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol based rub frequently and not touching your face. The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes, so it's important that you also practice respiratory etiquette (for example, by coughing into a flexed elbow). At this time, there are no specific vaccines or treatments for COVID-19. However, there are many ongoing clinical trials evaluating potential treatments. (WHO 2020)

Hantaviruses are a family of viruses spread mainly by rodents and can cause varied disease syndromes in people worldwide. Infection with any hantavirus can produce hantavirus disease in people. Hantaviruses in the Americas are known as “New World” hantaviruses and may cause hantavirus pulmonary syndrome (HPS).

Laksham S. et al. (2020) presented the global level perspective of Coronavirus research output during the period of 1989 to March 2020 and these analyses included year wise research growth, global publication share and patterns of research communication channels and the most productive journals. Data was extracted from the Web of Science citation database using the search string of “Coronavirus” OR “Covid 19” and limited to Open Access Publications during 1989 to 2020, a total of 7381 publications were retrieved. The highest numbers of publications (561) were published in

2019, which have received 848 citations. Thus this article can be concluded by collaborative author's productivity dominates compared to the single author's contribution. On the basis of literature analysis around the world, it is found that the 7381 publications came from 127 countries. United States (USA) is the most productive country with 2801 publications (37.9% and received 107738 Citations. India (80) has to improve in the field of Coronavirus research in future. The research articles published in peer-reviewed journals of Open Access will create a global impact on the Country, Institutions with subdivision and scientists. These contributions will help the research community to get required information for the research and encourage the researcher in the field of Coronavirus.

Rajagopal et al. (2012) Analyses the growth and development of pheromone biology research productivity in India in terms of publication output as reflected in Science Citation Index (SCI) for the period 1978–2008. It includes 330 publications from India, including 285 articles, 22 notes, 18 reviews, 4 letters and 1 conference paper, from 200 institutions. About 9.4 % of publications is contributed by Indian Institute of Technology, Kanpur followed by Bhabha Atomic Research Centre, Bombay (7.27 %). All the papers published by Indian researchers have appeared in journals with impact factors between 0.20 and 4.14. About 24.24 % of authors contributed single articles. The growth rate of publications varied from 0.30 to 9.09 % per year. The annual growth rate was highest in the year 2006 at 9.09 %. The study reveals that the output of pheromone biology research in India has gradually increased over the years.

OBJECTIVES

The objective of the study is to perform a scientometric analysis of all Hantavirus/Coronavirus research publications in India. The parameters studied include growth of publications, country wise distribution collaboration of publications, productive author, domain-wise distribution of publications, highly productive institutes, identification of highly cited publications and highly preferred journals.

MATERIALS AND METHODS

The Scopus database was used for retrieving data on Hantavirus/Coronavirus during 1975-2020, using search terms namely 'Hantavirus*' or 'Coronavirus*' in 'topic' field and limited

to India in affiliation field. A total of 3498 publications to these publications were transferred to spread sheet application. The bibliographic fields were analysed by normal count procedure for country wise collaboration, subject domains, authorships, journals, Institutes, Funding agencies and Highly cited papers.

RESULTS AND DISCUSSION

International Collaboration

In all, there were 129 countries involved in research in Hantavirus/Coronaviruses field and which published at least one publication. The USA topped the list with highest share (374) of publications. United Kingdom with 212 share of publications followed by China with 154 share of publications, Thailand with 119 share of publications, Australia and Italy with 101 share of publications respectively. The study found that 6 countries recorded more than 100 Publications and 52 countries with minimum of 10 Publications.

Table 1 shows International Collaboration of Publications

Country	Publications
United States	374
United Kingdom	212
China	154
Thailand	119
Australia	101
Italy	101
Saudi Arabia	90
Germany	77
Canada	71
Brazil	66
South Korea	64
Singapore	61
Switzerland	58
Japan	57
Colombia	56
Spain	53
Iran	49
France	48
Nepal	44
Netherlands	42
Turkey	38
South Africa	37

Belgium	34
Bangladesh	33
Hong Kong	32
Poland	32
Egypt	29
Malaysia	27
Indonesia	25
Taiwan	25
Mexico	24
Russian Federation	24
Pakistan	22
Sweden	22
United Arab Emirates	22
Greece	21
Nigeria	18
Portugal	18
Denmark	16
Israel	15
New Zealand	15
Norway	15
Peru	15
Argentina	13
Austria	13
Chile	13
Viet Nam	12
Ireland	11
Tunisia	11
Lebanon	10
Philippines	10
Ukraine	10
Finland	9
Oman	9
Ethiopia	8
Morocco	8
Serbia	8
Hungary	7
Romania	7
Sri Lanka	7
Czech Republic	6
Kenya	6
Mozambique	6

Qatar	6
Bolivia	5
Jordan	5
Kuwait	5
Macao	5
Venezuela	5
Croatia	4
Ghana	4
Honduras	4
Lithuania	4
Malawi	4
Cameroon	3
Guatemala	3
Panama	3
Sudan	3
Tanzania	3
Uganda	3
Afghanistan	2
Armenia	2
Benin	2
Bulgaria	2
Burkina Faso	2
Costa Rica	2
Democratic Republic Congo	2
Georgia	2
Kazakhstan	2
Kyrgyzstan	2
Luxembourg	2
Maldives	2
Mali	2
Papua New Guinea	2
Slovenia	2
Uruguay	2
Yemen	2
Zambia	2
Zimbabwe	2
Albania	1
Bahrain	1
Barbados	1
Belarus	1

Belize	1
Bosnia and Herzegovina	1
Botswana	1
Cambodia	1
Congo	1
Cook Islands	1
Cote d'Ivoire	1
Cyprus	1
Estonia	1
Gambia	1
Guinea	1
Guinea-Bissau	1
Guyana	1
Iraq	1
Jamaica	1
Latvia	1
Lesotho	1
Malta	1
Mauritius	1
Mongolia	1
Palestine	1
Puerto Rico	1
Saint Kitts and Nevis	1
Suriname	1
Syrian Arab Republic	1
Trinidad and Tobago	1

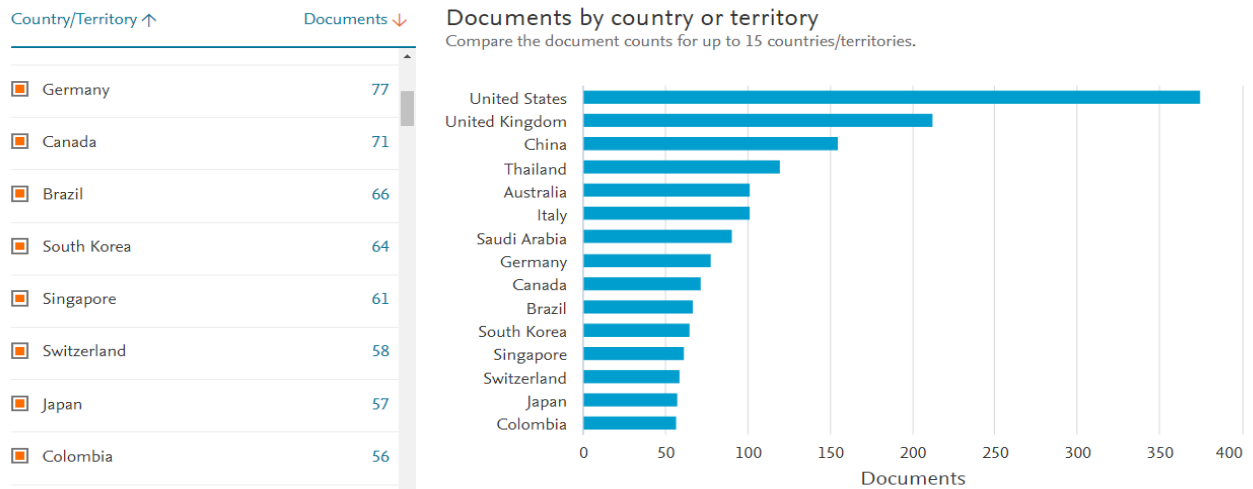


Figure shows that International collaboration of Indian Scientists

Year wise Growth of Publications

A total of 3498 publications were published on Hantavirus/Coronavirus during 1975-2020. Year-wise distribution of publications is given in Fig. 1. The highest number of publications 3218 (out of 3498) was published in 2020 followed by 2019 and 2017 with 24 publications respectively. The study found that the publication is started from 1975 and up to 2000 recorded single digit of Publications.

Table 2 shows that Year wise Growth of Publications

Year	Publications	Year	Publications
2020	3218	2004	11
2019	24	2005	8
2017	24	2008	7
2014	22	2006	5
2013	20	2002	3
2021	19	1994	2
2018	19	1982	2
2016	14	2001	1
2015	14	1996	1
2012	14	1995	1
2010	13	1984	1
2011	12	1980	1
2009	12	1977	1
2003	12	1975	1
2007	11		

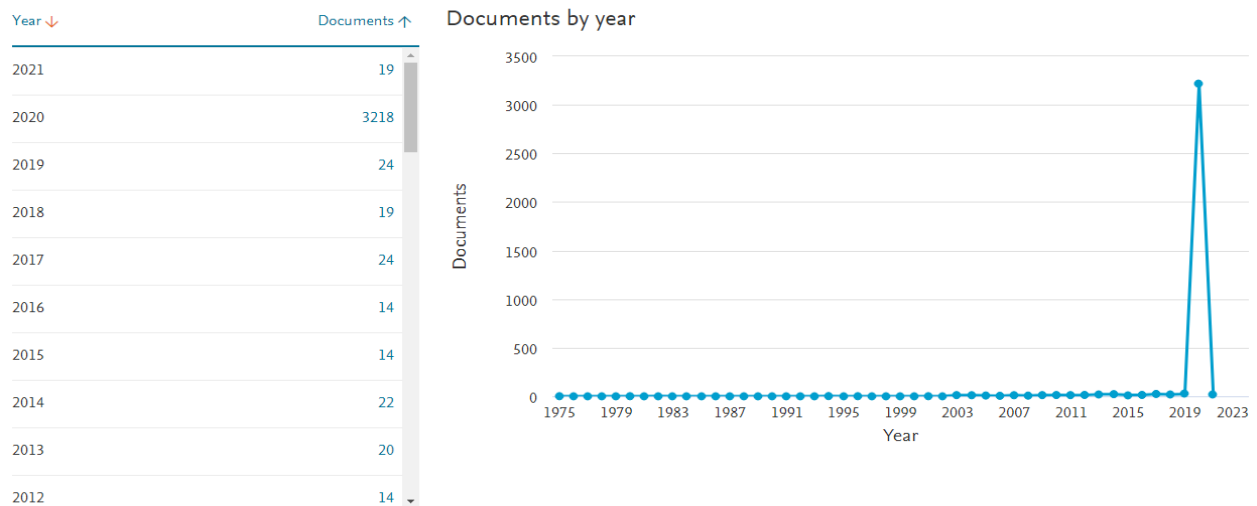


Figure 2 shows that document by year

Highly Productive Institutes

Table 3 shows the institutes that have contributed 3498 publications on Hantavirus/Coronavirus during 1975-2020. All India Institute of Medical Sciences, New Delhi topped the list with 246 publications, followed by Postgraduate Institute of Medical Education & Research, Chandigarh with 178 publications, Dr. D.Y. Patil Vidyapeeth Deemed University, Pune with 108 publications. 160 Institutes are with minimum of 10 Publications 12 Institutes are 50 and above publications.

Table 3 shows that Highly Productive Institutes

Institution	Publications
All India Institute of Medical Sciences, New Delhi	246
Postgraduate Institute of Medical Education & Research, Chandigarh	178
Dr. D.Y. Patil Vidyapeeth Deemed University, Pune	108
Hainan Medical University	72
National Institute of Mental Health and Neuro Sciences	66
Indian Veterinary Research Institute	65
Indian Council of Medical Research	62
Sanjay Gandhi Postgraduate Institute of Medical Sciences Lucknow	61
Indian Council of Agricultural Research	56
King George's Medical University	54
Manipal Academy of Higher Education	53
Tata Memorial Hospital	51
All India Institute of Medical Sciences, Jodhpur	48
Indraprastha Apollo Hospitals	46
Christian Medical College, Vellore	45
Homi Bhabha National Institute	42
All India Institute of Medical Sciences, Rishikesh	42
University of Delhi	40
Datta Meghe Institute of Medical Sciences Deemed to be University	38
Jamia Millia Islamia	37
VMMC & Safdarjang Hospital	36
College of Veterinary Science India	35
Università degli Studi di Roma La Sapienza	34
Dr. Ram Manohar Lohia Hospital	32
Universitätsspital Basel	32
Jawaharlal Nehru University	32
Indian Institute of Technology Delhi	31
Jawaharlal Institute of Postgraduate Medical Education and Research	30
Vellore Institute of Technology, Vellore	29

University of New South Wales UNSW Australia	29
National Institute of Virology India	29
Universidad Tecnológica de Pereira	29
Fundación Universitaria Autónoma de las Américas	29
Government Medical College & Hospital, Chandigarh	26
All India Institute of Medical Sciences, Bhubaneswar	26
National University of Singapore	25
Amity University, Noida	25
SMS Medical College	24
Jamia Hamdard	24
University of Toronto	23
Medical College and Hospital Kolkata	22
Banaras Hindu University	22
L.V. Prasad Eye Institute India	22
Dr. Rajendra Prasad Centre for Ophthalmic Sciences	22
Sir Ganga Ram Hospital	21
Lady Hardinge Medical College	21
Savitribai Phule Pune University	21
Ministry of Health and Family Welfare	21
Institute of Post Graduate Medical Education and Research Kolkatta	21
Tribhuvan University	21
Indian Institute of Technology Kharagpur	20
Central Michigan University	20
Saveetha Institute of Medical and Technical Sciences	20
Chinese University of Hong Kong	19
Maulana Azad Medical College	19
Kasturba Medical College, Manipal	19
University of Hyderabad	19
International Centre for Genetic Engineering and Biotechnology	19
The Warren Alpert Medical School	18
Organisation Mondiale de la Santé	18
Tribhuvan University Teaching Hospital	18
Lovely Professional University	18
All India Institute of Medical Sciences, Patna	18
The IIHMR University, Jaipur	18
G.D Hospital & Diabetes Institute	17
University College of Medical Sciences	17
King Saud University	17
Banaras Hindu University, Institute of Medical Sciences	17
All India Institute of Medical Sciences Bhopal	17
Academy of Scientific and Innovative Research AcSIR	17

Medical School of Jundiaí	16
Sher-I-Kashmir Institute of Medical Sciences	16
Indian Institute of Science, Bengaluru	16
University of Washington, Seattle	16
Panjab University	16
Jadavpur University	16
Aligarh Muslim University	16
Seth GS Medical College and KEM Hospital	16
Diabetes Foundation India, New Delhi	16
Indian Institute of Science Education and Research Kolkata	16
George Institute for Global Health	16
JSS Academy of Higher Education & Research	16
Johns Hopkins Aramco Healthcare	16
Government Medical College Srinagar	15
RG Kar Medical College	15
Saveetha Dental College And Hospitals	15
Southport and Ormskirk Hospital NHS Trust	15
Obesity and Cholesterol Foundation	14
SRM Institute of Science and Technology	14
Armed Forces Medical College	14
University of Calcutta	14
Sree Chitra Tirunal Institute for Medical Sciences and Technology	14
The University of Queensland	14
Pt. B.D. Sharma PGIMS, Rohtak	14
Institute Rotary Cancer Hospital India	14
Kalinga Institute of Industrial Technology, Bhubaneswar	14
Fortis Healthcare Ltd.	14
U.P. Pandit Deen Dayal Upadhyaya pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan	14
Public Health Foundation of India	14
TWS Medical Center	13
Iqraa International Hospital and Research Centre	13
Imperial College London	13
Council of Scientific and Industrial Research India	13
Cleveland Clinic Foundation	13
Anna University	13
University of Melbourne	13
MM Institute of Medical Sciences and Research	13
Sharda University	13
University of Gour Banga	13
Indian Institute of Public Health Gandhinagar	12

University of Pennsylvania	12
The University of Hong Kong	12
Indian Institute of Technology Guwahati	12
Indira Gandhi Medical College	12
University College London	12
London School of Hygiene & Tropical Medicine	12
Medical University of Warsaw	12
Universitas Syiah Kuala	12
Maharishi Markandeshwar Deemed to be University, Mullana	12
Gian Sagar Medical College & Hospital	12
Institute of Liver and Biliary Sciences	12
University of Petroleum and Energy Studies	12
All India Institute of Medical Sciences, Raipur	12
Enam Medical College and Hospital	11
Fortis CDOC Hospital for Diabetes and Allied Sciences	11
Emory University	11
Thapar Institute of Engineering & Technology	11
Harvard Medical School	11
Maharshi Dayanand University	11
Dayanand Medical College & Hospital	11
Universidade de Sao Paulo - USP	11
Bharathiar University	11
Indian Institute of Technology, Bombay	11
Alagappa University	11
Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir	11
NYU Grossman School of Medicine	11
University of Oxford	11
Stanford University School of Medicine	11
Hindu Rao Hospital	11
Karunya Institute of Technology and Sciences	11
Jazan University	11
Asian Institute of Medical Sciences	10
Adamas University	10
Guru Nanak Dev University	10
Johns Hopkins University	10
University of Auckland	10
Amrita Institute of Medical Sciences India	10
Indian Institute of Chemical Biology	10
Karolinska Institutet	10
Stanford University	10

University of Florida	10
Hallym University	10
P.D. Hinduja National Hospital and Medical Research Centre	10
Indian Statistical Institute, Kolkata	10
Indian Institute of Technology Madras	10
Yong Loo Lin School of Medicine	10
Chulalongkorn University	10
International Centre for Genetic Engineering and Biotechnology, New Delhi	10
University of Minnesota Twin Cities	10
Army Hospital Research & Referral	10

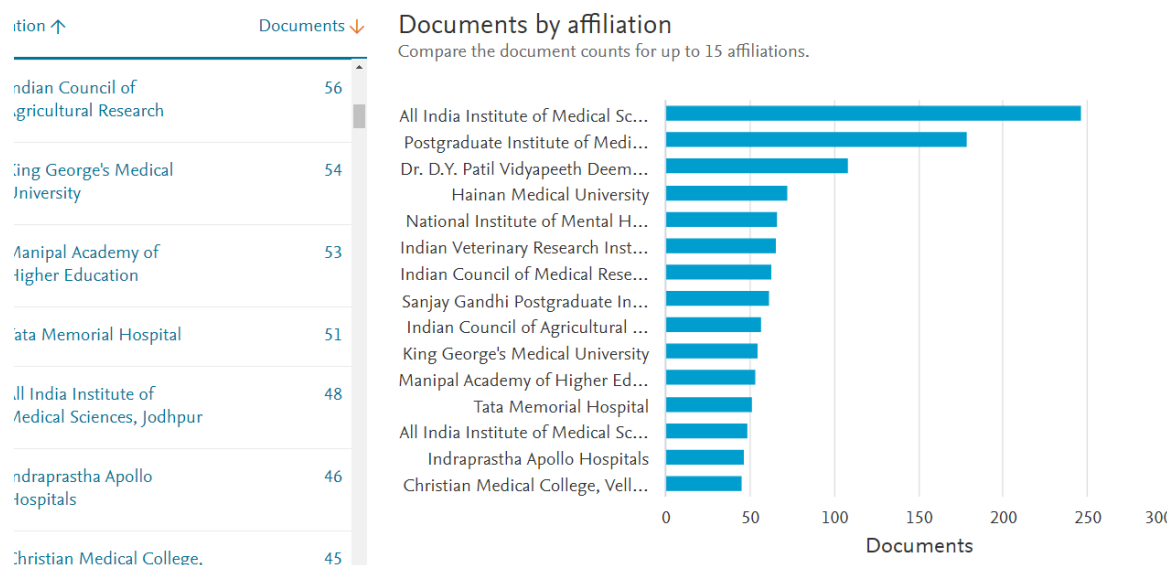


Figure 3 shows document by Affiliation

Document Wise Distribution of Publications

Table 4 and figure 4 illustrates the document wise distribution of publication in Hantavirus/Coronavirus research from (1975-2020). The maximum 1703 of research papers were found in 'Journal Articles' type documents, followed by 825 of records were 'Letter' type documents and 'review 599; Note with 156 ; Editorial with 146; book chapter 21; Conference paper 20; Short Survey with 14 were recorded during the period of study

Table 4 shows that Document Wise Distribution of Publications

Document Type	Records
Article	1703
Letter	825

Review	599
Note	156
Editorial	146
Book Chapter	21
Conference Paper	20
Short Survey	14
Data Paper	5
Erratum	3
Book	1

Documents by type

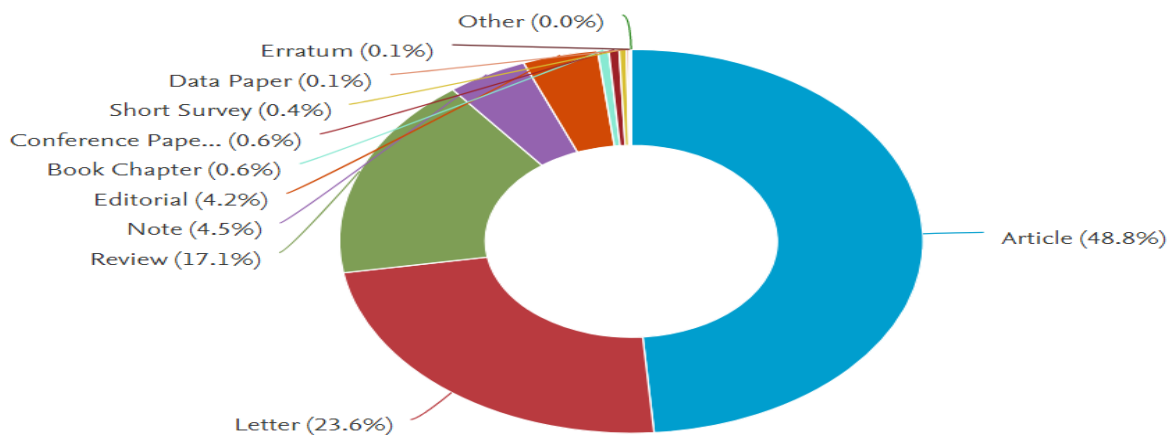


Figure 4 shows that document by type

Journals Preferred for Publication by the Scientists

The scientific literature on Hantavirus/Coronavirus is spread over different source journals and publications are published in only 64 key-journals. Table 5 gives the leading journals each with number of publications. The highly productive journals are: Diabetes And Metabolic Syndrome Clinical Research and Reviews(Elsevier) with 100 publications (CiteScore-2.6, SJR-0.672 and SNIP-0.982), Asian Journal Of Psychiatry(Elsevier) with 92(CiteScore-2.7, SJR-0.736 and SNIP-1.022); Indian Journal Of Ophthalmology(Wolters Kluwer Health)(CieScore-1.6, SJR-0.482 and SNIP-0.931) and Journal Of Biomolecular Structure And Dynamics with 80 publications respectively. The study found that 64 journals are recorded minimum of 10 Publications. 3218 publications are covered in the year of 2020.

Table 5 shows that Journals Preferred for Publication by the Scientists

Source Title	Records
Diabetes And Metabolic Syndrome Clinical Research And Reviews	100
Asian Journal Of Psychiatry	92
Indian Journal Of Ophthalmology	80
Journal Of Biomolecular Structure And Dynamics	80
Dermatologic Therapy	66
International Journal Of Research In Pharmaceutical Sciences	59
Indian Journal Of Medical Research	58
Indian Pediatrics	43
Indian Journal Of Public Health	42
Chaos Solitons And Fractals	39
Medical Hypotheses	38
Journal Of Pure And Applied Microbiology	34
Indian Journal Of Pediatrics	33
Journal Of The Association Of Physicians Of India	32
Science Of The Total Environment	32
Indian Journal Of Community Health	31
Economic And Political Weekly	30
Indian Journal Of Surgery	29
Indian Journal Of Anaesthesia	28
Journal Of Medical Virology	24
Journal Of The Indian Medical Association	24
Medical Journal Armed Forces India	24
Indian Journal Of Medical Microbiology	23
Indian Journal Of Otolaryngology And Head And Neck Surgery	22
Indian Journal Of Medical And Paediatric Oncology	20
International Journal Of Current Research And Review	18
International Journal Of Preventive Medicine	18
Psychiatry Research	18
Virusdisease	18
Current Science	17
Journal Of Clinical Orthopaedics And Trauma	17
Journal Of Health Management	16
Life Sciences	16
Neurology India	16
Plos One	16
Annals Of Indian Academy Of Neurology	15
Indian Heart Journal	15
Indian Journal Of Clinical Biochemistry	15
Indian Journal Of Orthopaedics	15

International Journal Of Pervasive Computing And Communications	15
Journal Of Critical Reviews	15
Journal Of The Pakistan Medical Association	15
Oral Oncology	15
Springerbriefs In Applied Sciences And Technology	15
Diabetes Research And Clinical Practice	14
Archives Of Medical Research	13
Indian Journal Of Tuberculosis	13
Journal Of Surgical Oncology	13
Monaldi Archives For Chest Disease	13
Indian Journal Of Nephrology	12
International Journal Of Advanced Science And Technology	12
Journal Of Public Affairs	12
Lancet	12
BMJ	11
Clinical Epidemiology And Global Health	11
Infection Genetics And Evolution	11
Public Health	11
Brain Behavior And Immunity	10
Environment Development And Sustainability	10
Indian Journal Of Psychiatry	10
International Journal Of Social Psychiatry	10
Journal Of Biosciences	10
Lung India	10
World Neurosurgery	10
Journal Of Clinical Anesthesia	9
Postgraduate Medical Journal	9
Primary Care Companion For CNS Disorders	9
Air Quality Atmosphere And Health	8
BMJ Global Health	8
British Journal Of Surgery	8
Clinical And Experimental Dermatology	8
European Review For Medical And Pharmacological Sciences	8
Hepatology International	8
Indian Journal Of Pharmacology	8
International Journal Of Psychosocial Rehabilitation	8
International Journal On Emerging Technologies	8
Perspectives In Clinical Research	8
Social Work With Groups	8
Travel Medicine And Infectious Disease	8
Tropical Doctor	8

Asia Pacific Journal Of Public Health	7
Asian Pacific Journal Of Tropical Medicine	7
F1000research	7
Indian Journal Of Animal Sciences	7
Indian Journal Of Gastroenterology	7
International Journal Of Academic Medicine	7
International Journal Of Advanced Trends In Computer Science And Engineering	7
International Journal Of Health Planning And Management	7
Journal Of Ayurveda And Integrative Medicine	7
Journal Of Cardiac Surgery	7
Journal Of Clinical And Experimental Hepatology	7
Journal Of Obstetrics And Gynecology Of India	7
ACS Chemical Neuroscience	6
American Journal Of Emergency Medicine	6
Clinica Chimica Acta	6
Drug Development Research	6
Environmental Research	6
European Journal Of Pharmacology	6
Frontiers In Immunology	6
Frontiers In Public Health	6
Head And Neck	6
Indian Journal Of Research In Homoeopathy	6
Indian Journal Of Thoracic And Cardiovascular Surgery	6
Infezioni In Medicina	6
Informatics In Medicine Unlocked	6
Injury	6
International Journal Of Environmental Research And Public Health	6
International Journal Of Pharmaceutical Research	6
Journal Of Advanced Research In Dynamical And Control Systems	6
Journal Of Infection And Public Health	6
Journal Of Oral Biology And Craniofacial Research	6
Journal Of Virology	6
Virus Research	6
Aerosol And Air Quality Research	5
Annals Of The Rheumatic Diseases	5
Biointerface Research In Applied Chemistry	5
Clinical Rheumatology	5
Current Topics In Medicinal Chemistry	5
Disaster Medicine And Public Health Preparedness	5
Frontiers In Medicine	5

Frontiers In Microbiology	5
Gedrag En Organisatie	5
Genomics	5
Human Vaccines And Immunotherapeutics	5
Indian Journal Of Biochemistry And Biophysics	5
Indian Veterinary Journal	5
Infection Control And Hospital Epidemiology	5
International Journal Of Antimicrobial Agents	5
International Journal Of Diabetes In Developing Countries	5
International Journal Of Surgery	5
Journal Of Association Of Physicians Of India	5
Journal Of Cardiothoracic And Vascular Anesthesia	5
Journal Of Dharma	5
Journal Of Infection	5
Journal Of Medical Systems	5
Journal Of Molecular Structure	5
Journal Of Orthopaedics	5
Journal Of Research In Medical Sciences	5
Journal Of The European Academy Of Dermatology And Venereology	5
Lancet Global Health	5
Lancet Psychiatry	5
Microbial Pathogenesis	5
Obesity Surgery	5
Pediatric Blood And Cancer	5
Phytotherapy Research	5
Primary Care Diabetes	5
Vaccine	5
Acta Paediatrica International Journal Of Paediatrics	4
American Journal Of Otolaryngology Head And Neck Medicine And Surgery	4
Applied Soft Computing Journal	4
Elife	4
European Journal Of Medicinal Chemistry	4
Food Security	4
Gut	4
Indian Journal Of Gynecologic Oncology	4
Indian Journal Of Pathology And Microbiology	4
Indian Journal Of Surgical Oncology	4
Infectious Disease Modelling	4
International Journal Of Biological Macromolecules	4
International Journal Of Infectious Diseases	4

Documents per year by source

Compare the document counts for up to 10 sources.

Compare sources and view CiteScore, SJR, and SNIP data

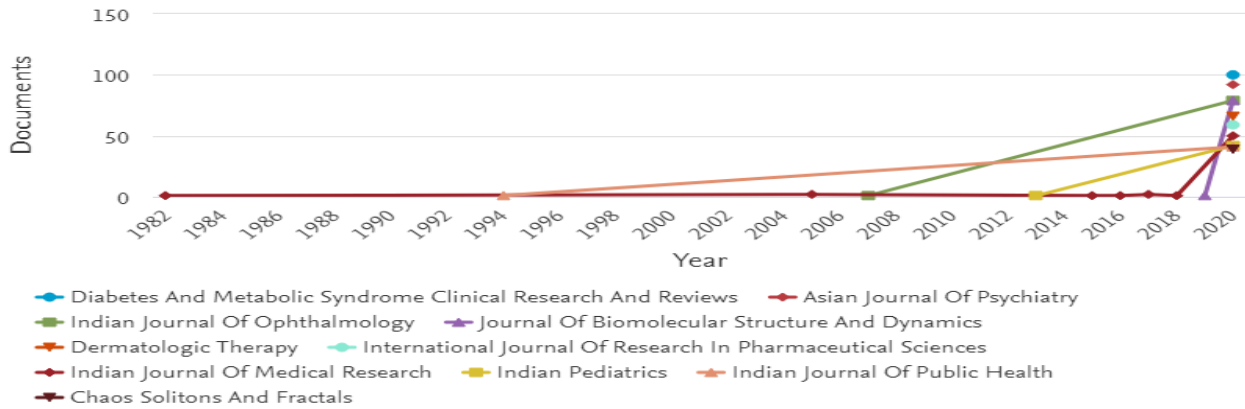


Figure 5 shows that document per year by source

Subject Domain-wise Distribution of Publications

Based on the classification of subject-categories in Scopus of Elsevier Science, the publication output data of Hantavirus/Coronavirus research was classified into 27 broad subjects (Fig. 6) during 1975-2020. Medicine accounts for the largest share (2299 papers) of publications in the total Indian output, followed by Biochemistry, Genetics and Molecular Biology with 604 papers, Immunology and Microbiology with 268, Pharmacology, Toxicology and Pharmaceutics with 261. 12 Key subjects are covered 100 and above publications.

Table 6 shows that Subject Domain-wise Distribution of Publications

Subjects	Records
Medicine	2299
Biochemistry, Genetics and Molecular Biology	604
Immunology and Microbiology	268

Pharmacology, Toxicology and Pharmaceutics	261
Social Sciences	169
Environmental Science	142
Agricultural and Biological Sciences	131
Engineering	124
Psychology	118
Computer Science	103
Neuroscience	103
Mathematics	101
Economics, Econometrics and Finance	65
Chemistry	61
Physics and Astronomy	60
Dentistry	55
Nursing	48
Chemical Engineering	47
Multidisciplinary	47
Energy	45
Veterinary	45
Business, Management and Accounting	42
Materials Science	35
Earth and Planetary Sciences	26
Health Professions	21
Arts and Humanities	17
Decision Sciences	17
Undefined	3

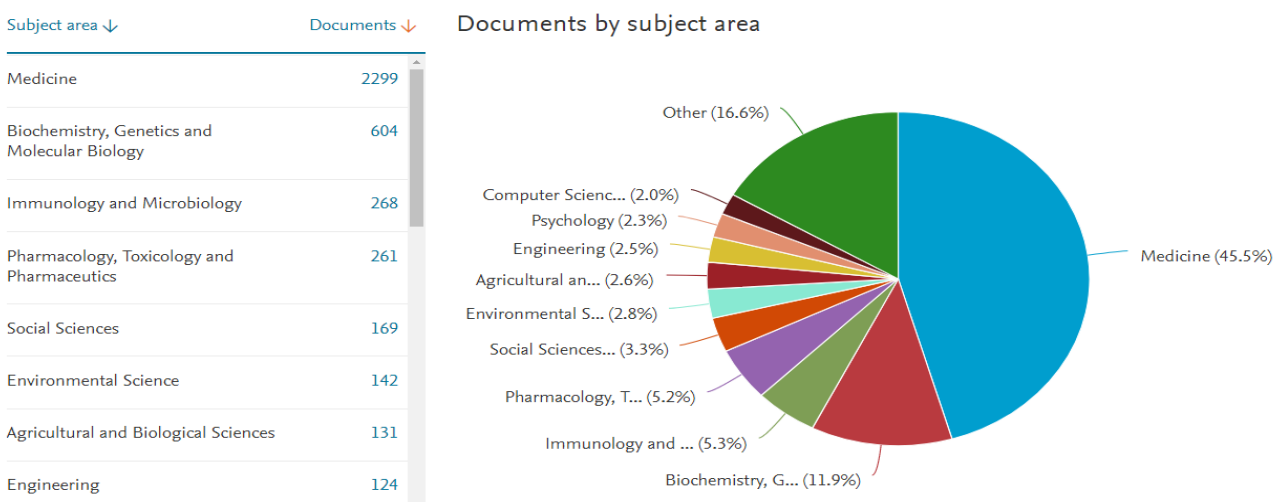


Figure 6 shows that document by Subject area

Funding Agencies

Indian Council of Medical Research and Science and Engineering Research Board leads with 46 of publications respectively being featured in the funding agency followed by the Department of Science and Technology, Government of Kerala with 34 publications, Department of Science and Technology, Ministry of Science and Technology, India with 33 publications, Department of Biotechnology, Government of West Bengal with 31 Publications. The study found that Funding agencies of State Governments also supported for this Hantavirus/Coronavirus Research.

Table 7 shows that Funding agency wise distribution of Publications

Indian Council of Medical Research	46
Science and Engineering Research Board	46
Department of Science and Technology, Government of Kerala	34
Department of Science and Technology, Ministry of Science and Technology, India	33
Department of Biotechnology, Government of West Bengal	31
Bangladesh Council of Scientific and Industrial Research	27
National Institutes of Health	25
University Grants Commission	23
Department of Biotechnology, Ministry of Science and Technology, India	21
Council of Scientific and Industrial Research, India	17
University Grants Committee	15
Ministry of Human Resource Development	11
World Health Organization	10
Hallym University	7
National Institute for Health Research	7
National Natural Science Foundation of China	7
National Research Foundation of Korea	7
Indian Council of Agricultural Research	6
Centers for Disease Control and Prevention	5
Wellcome Trust	5
All-India Institute of Medical Sciences	4
Deanship of Scientific Research, King Saud University	4
Department of Science and Technology, Government of West Bengal	4
Indian Institute of Technology Kharagpur	4
Medtronic	4
National Center for Advancing Translational Sciences	4
National Environmental Engineering Research Institute	4
Novartis	4
AstraZeneca	3
Bharathiar University	3

Bill and Melinda Gates Foundation	3
Boehringer Ingelheim	3
Boston Scientific Corporation	3
European Commission	3
European Regional Development Fund	3
European Space Agency	3
Higher Education Discipline Innovation Project	3
Indian Institute of Science Education and Research Kolkata	3
Innovative Medicines Initiative	3
King Saud University	3
Medical Research Council	3
Ministry of Education and Science of the Russian Federation	3
Ministry of Electronics and Information technology	3
National Aeronautics and Space Administration	3
National Multiple Sclerosis Society	3
National Science Foundation	3
Pfizer	3
Roche	3
Sanofi	3
VIT University	3
Abbott Laboratories	2
Agencia Estatal de Investigaci3n	2
All India Council for Technical Education	2
Amgen	2
Applied Physics Laboratory, Johns Hopkins University	2
Bayer	2
Canadian Institutes of Health Research	2
Canterbury Christ Church University	2
China Scholarship Council	2
Department of Education of Guangdong Province	2
Department of Health, Australian Government	2
Department of Scientific and Industrial Research, Ministry of Science and Technology, India	2
Deutsche Forschungsgemeinschaft	2
Environmental Protection Agency	2
European Federation of Pharmaceutical Industries and Associations	2
Fundaci3n Alfonso Mart3n Escudero	2
Gilead Sciences	2
GlaxoSmithKline	2
GlaxoSmithKline Australia	2
Horizon 2020	2

Horizon 2020 Framework Programme	2
Huazhong University of Science and Technology	2
Indian Institute of Technology Delhi	2
Indian National Science Academy	2
Institute of International Studies, University of California Berkeley	2
International Centre for Genetic Engineering and Biotechnology	2
Jawaharlal Nehru Technological University Hyderabad	2
Johnson and Johnson	2
Lundbeckfonden	2
Manchester Biomedical Research Centre	2
Medical Center, University of Pittsburgh	2
Merck	2
Merck Sharp and Dohme	2
Ministry of Coal, Government of India	2
Ministry of Education - Singapore	2
Ministry of Education, Culture, Sports, Science and Technology	2
NIHR Imperial Biomedical Research Centre	2
Narodowy Instytut Leków	2
National Institute of Allergy and Infectious Diseases	2
National Institute of General Medical Sciences	2
National Oceanic and Atmospheric Administration	2
National University of Singapore	2
Natural Sciences and Engineering Research Council of Canada	2
North-Eastern Hill University	2
Novartis Pharma	2
Novo Nordisk Fonden	2
Office of Chief Information Officer	2
PATH	2
Rockefeller Foundation	2
Takeda Pharmaceutical Company	2
U.S. Food and Drug Administration	2
University of Kalyani	2
University of Technology Sydney	2
AbbVie Deutschland	1
Academy of Finland	1
Academy of Medical Sciences	1
Actelion Pharmaceuticals	1
Advanced Centre for Treatment, Research and Education in Cancer, Tata Memorial Centre, Tata Memorial Centre	1
Agence Nationale de la Recherche	1
Agencia Nacional de Promoción Científica y Tecnológica	1

Agency for Healthcare Research and Quality	1
Agency for Science, Technology and Research	1
Air Force Office of Scientific Research	1
Al-Balqa' Applied University	1
Alberta Agriculture and Forestry	1
AllerGen	1
Alzheimer Society	1
Alzheimer's Society	1
American Academy of Allergy Asthma and Immunology	1
American Association for Dental Research	1
American Heart Association	1
American Society for Veterinary Clinical Pathology	1
Anhui Science and Technology Department	1
Anna University	1
Appalachian State University	1
Asahikawa Medical University	1
Association of Professors of Gynecology and Obstetrics	1
Astellas Pharma	1
Astellas Pharma US	1
Auburn University	1
Babol University of Medical Sciences	1
Banaras Hindu University	1
Baxter Healthcare Corporation	1
Bhabha Atomic Research Centre	1
BioCryst	1
Biogen	1
Birla Institute of Scientific Research	1
Board of Research in Nuclear Sciences	1
Brain and Behavior Research Foundation	1
Bristol-Myers Squibb	1
Bristol-Myers Squibb Canada	1
CSIR - Indian Institute of Chemical Biology	1
Campbell Family Institute for Breast Cancer Research	1
Canadian Poultry Research Council	1
Carl Zeiss Meditec AG	1
Celgene	1
Center for Outcomes Research and Evaluation, Yale School of Medicine	1
Central Institute of Medicinal and Aromatic Plants	1
Central Research Institute for Dryland Agriculture	1
Central University of Gujarat	1
Centre Hospitalier Universitaire Vaudois	1

Centre for Addiction and Mental Health Foundation	1
Chettinad Academy of Research and Education	1
Chiesi Farmaceutici	1
Children's Health Research Institute	1
Cochin University of Science and Technology	1
Council for Scientific and Industrial Research	1
Council for Scientific and Industrial Research, South Africa	1
Cytokinetics	1
Undefined	3080

Documents by funding sponsor

Compare the document counts for up to 15 funding sponsors.

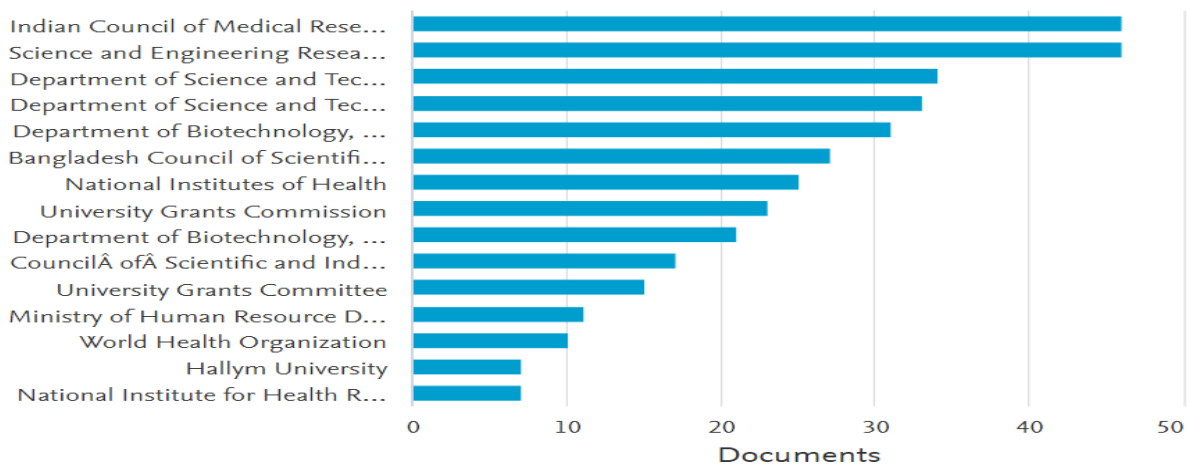


Figure 7 shows that document by funding sponsor

Profile of Top Most Prolific Authors

Table 8 illustrates the profile of top most prolific authors in Hantavirus/Coronavirus research publications during the period (1975-2020). On the observation of table, it has been shown that Wiwanitkit, V. was contributed a maximum (108 out of 3285) research papers with (24) h-index and (5377 overall) citations, followed by Dhama, K. with (53 out of 421) publication; (34) h-index; (5242) citations, while Joob B. with (39) research papers. The overall data of the top most productive was shown in below table 8.

Table 8 shows that Profile of Top Most Prolific Authors

Wiwanitkit, V.	108
Dhama, K.	53
Joob, B.	39
Goldust, M.	32

Vaishya, R.	29
Tiwari, R.	27
Rodriguez-Morales, A.J.	25
Malik, Y.S.	23
Misra, A.	22
Jafferany, M.	20
Sah, R.	20
Singh, A.K.	20
Yasri, S.	20
Bonilla-Aldana, D.K.	19
Grover, S.	19
Lotti, T.	18
Pal, R.	18
Mehra, A.	17
Sahoo, S.	17
Gupta, N.	16
Kroumpouzou, G.	16
Rabaan, A.A.	16
Abraham, P.	15
Ish, P.	15
Javaid, M.	15
Patel, S.K.	15
Vaish, A.	15
Gupta, N.	14
Haleem, A.	14
Kar, S.K.	14
Lal, S.K.	14
Prasad, N.	14
Sriwijitalai, W.	14
Banerjee, D.	13
Gangakhedkar, R.	13
Potdar, V.	12
Sharma, N.	12
Singh, R.	12
Uvais, N.A.	12
Arafat, S.M.Y.	11
Honavar, S.G.	11
Jain, V.K.	11
Lodha, R.	11
Sharun, K.	11

Agarwal, S.	10
Bajwa, S.	10
Bhadada, S.K.	10
Bhatia, R.	10
Bhattacharya, M.	10
Chakraborty, C.	10
Gupta, R.	10
Kumar, N.	10
Lee, S.S.	10
Medhi, B.	10
Mehta, P.	10
Shetty, R.	10
Sookaromdee, P.	10
Sridharan, G.	10
Yadav, R.	10
Agrawal, A.	9
Biswas, B.	9
Chandy, S.	9
Gautam, S.	9
Iyengar, K.	9
Jakhar, D.	9
Kabra, S.K.	9
Kassir, M.	9
Kumar, M.	9
Mehdiratta, L.	9
Moscote-Salazar, L.R.	9
Pathak, M.	9
Rajkumar, R.P.	9
Ransing, R.	9
Sadoughifar, R.	9
Sarma, P.	9
Sharma, A.R.	9
Sharma, G.	9
Sharma, P.	9
Basu, A.	8
Batra, A.	8
Bhandari, S.	8
Bhargava, S.	8
Chow, V.T.K.	8
Dar, L.	8
Giri, S.	8

Gupta, N.	8
Kabir, R.	8
Kaur, I.	8
Kumar, A.	8
Kumar, A.	8
Misra, D.P.	8
Misra, S.	8
Murrell, D.F.	8
Patel, A.	8
Rudnicka, L.	8
Sapkal, G.	8
Sharma, A.	8
Yadav, P.	8
Abraham, P.	7
Agrawal, S.	7
Bhatnagar, T.	7
Bhattacharya, K.	7
Chatterjee, S.S.	7
Choudhary, M.	7
Das Sarma, J.	7
De Clercq, E.	7
Ghosh, R.	7
Gupta, M.	7
Harapan, H.	7
Jain, A.	7
Kalra, S.	7
Kanchan, T.	7
Kumar, A.	7
Madan, K.	7
Murhekar, M.	7
Parry, A.H.	7
Praharaj, I.	7
Prakash, A.	7
Sachdev, M.S.	7
Sarma, J.D.	7
Sharma, P.	7
Shindler, K.S.	7
Surjit, M.	7
Wani, A.H.	7
Yatoo, M.I.	7
Afra, T.P.	6

Agarwal, V.	6
Arteaga-Livias, K.	6
Avti, P.	6
Bahl, S.	6
Banerjee, M.	6
Bhoi, S.	6
Chatterjee, S.	6
Das, A.	6
Dubey, S.	6
Dutt, N.	6
Ghosh, A.	6
Iyengar, K.P.	6
Kapoor, A.	6
Kaur, H.	6
Kumar, A.	6
Kumar, J.	6
Kumar, S.	6
Malhotra, B.	6
Malhotra, N.	6
Marthoenis, M.	6
Menon, V.	6
Mohan, A.	6
Mungmungpantipantip, R.	6
Mungmunpantipantip, R.	6
Padhy, S.K.	6
Patil, S.	6
Sharma, D.	6
Shete-Aich, A.	6
Shoib, S.	6
Shrivastava, P.	6
Singh, A.	6
Singh, K.P.	6
Singh, R.K.	6
Sinha, R.	6

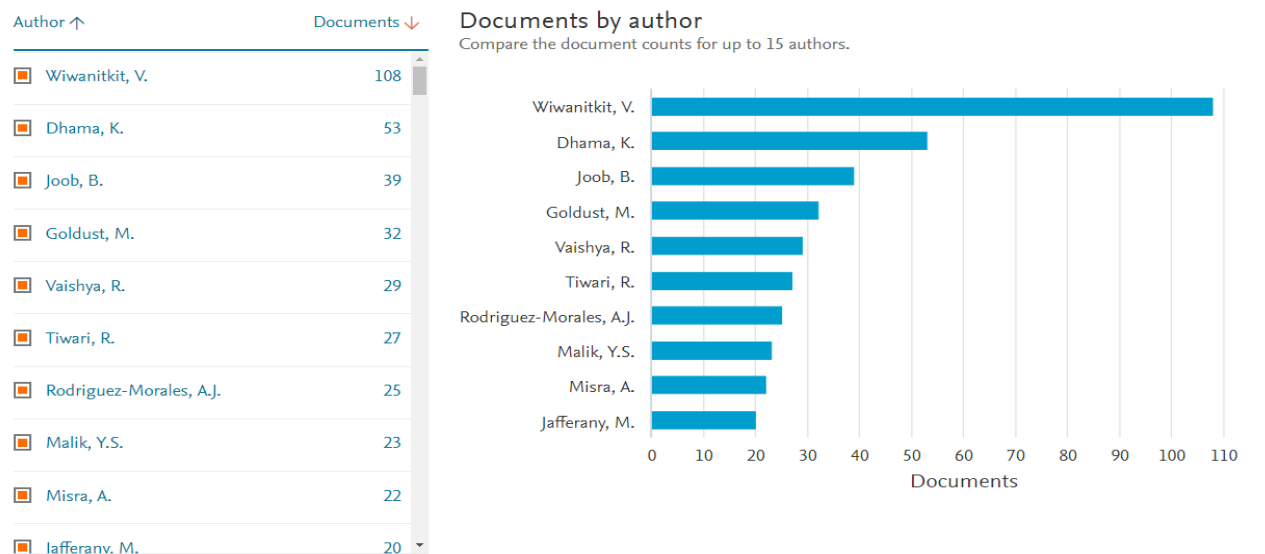


Figure 8 shows that document by author

Highly cited Publications

The highly cited Hantavirus/Coronavirus publications (which have got at least 100 citations) during the period of study are listed in Table 9. The most frequently cited one is “Rodriguez-Morales, A.J., Cardona-Ospina, J.A., Gutiérrez-Ocampo, E., (...), Ahmad, T., Sah, R.. (2020) Clinical, laboratory and imaging features of COVID-19: A systematic review and meta-analysis, *Travel Medicine and Infectious Disease* 34,101623 with 293 citations followed by Singhal, T. (2020) A Review of Coronavirus Disease-2019 (COVID-19), *Indian Journal of Pediatrics*, 87(4), pp. 281-286 with 218 Citations. The study found that 12 papers are recorded 100 and above Citations.

Table 9 shows that Highly Cited papers in Hantavirus/Coronavirus in India

	Documents	Citations	<2016	2016	2017	2018	2019	2020	Subtotal	>2020	Total
Total			482	83	72	96	101	1614	1966	6	2454
<input type="checkbox"/> 1	Clinical, laboratory and imaging features of COVID-19: A sys...	2020						293	293		293
<input type="checkbox"/> 2	A Review of Coronavirus Disease-2019 (COVID-19)	2020						217	217	1	218
<input type="checkbox"/> 3	Peptide vaccine: Progress and challenges	2014	11	28	15	42	38	56	179		190
<input type="checkbox"/> 4	Intensive care management of coronavirus disease 2019 (COVID...	2020						149	149		149
<input type="checkbox"/> 5	Transplantation of ACE2⁻ Mesenchymal stem cells i...	2020						144	144		144
<input type="checkbox"/> 6	COVID-19 and mental health: A review of the existing literat...	2020						126	126	1	127
<input type="checkbox"/> 7	A large outbreak of acute encephalitis with high fatality ra...	2004	98	6	9	6	3	4	28		126
<input type="checkbox"/> 8	Synthesis, antiviral activity and cytotoxicity evaluation of...	2010	39	8	15	17	16	17	73	2	114
<input type="checkbox"/> 9	Interpreting Diagnostic Tests for SARS-CoV-2	2020					1	110	111		111
<input type="checkbox"/> 10	Synthesis, antibacterial and antiviral properties of curcumi...	2010	51	8	9	7	16	10	50	1	102
<input type="checkbox"/> 11	The SARS coronavirus nucleocapsid protein induces actin reor...	2004	89	1	2		2	7	12		101
<input type="checkbox"/> 12	Clinical considerations for patients with diabetes in times ...	2020						100	100		100

CONCLUSION

There are hundreds of coronaviruses, most of which circulate in animals. Only seven of these viruses infect humans and four of them cause symptoms of the common cold. But, three times in the last 20 years, a coronavirus has jumped from animals to humans to cause severe disease. The virus has spread to 216 countries (922252 death confirmed on 15 Sep. 20) around the world in a rapidly expanding pandemic. Health officials in the United States and around the world are working to contain the spread of the virus through public health measures such as social distancing, contact tracing, testing, quarantines and travel restrictions. Scientists are working to find medications to treat the disease and to develop a vaccine. A lot of research is being carried out all over the world in this field. A total of 3487 publications were published on Hantavirus/Coronavirus during 1975-2020 and these publications received 50 H-index. The highest number of publications 3251 were published in 2020(with in 9 Months). The scientific research in Hantavirus/Coronavirus is spread over different journals. Majority of the publications were published in only 64 key-journals, indicates that they are the core journals where the important research results are published. 2318 publications are indexed in open access journals out of 3498 Publications.

REFERENCES

- **Laksham S., Surulinathi M., Balasubramani, R. and Srinivasaragavan S. (2020).** Mapping the research output on Coronavirus: A Scientometric Study, *Gedrag & Organisatie Review*, 33(2), 163-186.
- **Rajalakshmi, N., Surulinathi, M., Srinivasaragavan, S., and Balasubramani R. (2020).** Research Productivity of Social Scientists in Tamilnadu State Universities: A Bibliometric Study, *Gedrag and Organisatie Review*, 33(3), 633-634.
- **Savita Nandan Bhatkal, Surulinathi, M., Balasubramani, R., and Srinivasaragavan, S. (2020).** Geographical Information System Research in India: A Scientometric Mapping of Publications, *Gedrag and Organisatie Review*, 33(3), 327-342.
- **Surulinathi, M., Balasubramani, R., and Amsaveni, N (2020).** COVID-19 research output in 2020: The Global Perspective using Scientometric Study, *Library Philosophy and Practice*, 1-18.
- **Sankaralingam, R., Surulinathi, M. and Srinivasaragavan, S. (2020).** Indian contribution to Drugs Discovery: A Scientometric Mapping of Publications, *Gedrag and Organisatie Review*, 33(3), 712-734.
- **Sagar, A., Kademani, B. S., Bhanumurthy, K., & Ramamoorthy, N. (2014).** Research Trends in Radioisotopes: A Scientometric Analysis (1993-2012). *DESIDOC Journal of Library & Information Technology*, 34(4).349-358.

- **Rajagopal, T., Archunan, G., Surulinathi, M., & Ponmanickam, P. (2013).** Research output in pheromone biology: a case study of India. *Scientometrics*, *94*(2), 711-719.