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GROWTHS ON HERPES RESEARCH IN THE GLOBAL: A SCIENTOMETRIC ANALYSIS IN THE 21ST CENTURY

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Abstract

The virus coined in chimpanzees, flying interested in humans a few million years back. Around two-thirds of the human people are diseased through on minimum single herpes simplex virus. Now this research, we aimed to make a complete scientometric analysis of herpes collected works. We collected data by using four databases provided by Web of Science using the keywords "Herpes". The study is informative in categorizing and sympathetic trends, including core study areas, author, type of documents, journals, institutions, and countries, and just how these are related, within the existing body of collected works on herpes. A total of 8012 articles were founded of which 66.00 percent were unique articles. The Co-Occurrence relationships of all keywords networks analysis, Cluster1 repressed (Yellow, 173 Items) involves of illustration from herpes-simplex-virus, infection, cell, HSV-1, type-1and replication. The most productive journals on the subject of herpes were the Journal of virology with 4.20 percent. The highest publication year for herpes literature was 2016 with 1953 papers. To the greatest of our information, our research is the leading scientometric and analysis in herpes collected works. Linkage research presented that involving several hospital studies was very occasionally in this area.

Keywords: Herpes, Herpes simplex virus, HSV, Virus, Herpes Simplex and Scientometric

1. Introduction

Scientometric studies plan the investigation result in herpes and, consequently, service scholars and funding agencies to attention further on below studied areas and type further well-organized results related to community health. The purpose of this study was to carry out a scientometric analysis to describe the status of the research and publications in the field of Herpes. To find the record effective performers (authors, document type, institute, keyword, countries, and journals, etc.) and to study their role in the growth of science using a bibliometric analysis (Shamszadeh, S., Asgary, S., & Nosrat, A. 2019).

Every day, hundreds of researchers in virology related in the world their research output as innovative documents to a peer-reviewed journal to distribute their output to the worldwide technical community (Magnone, E. 2013). Herpes research has been one of the greatest self-motivated research fields in current centuries with an important impact on biology, cell biology, medical, microbiology, biochemical, immunological, and Virology research with more than 136,357 papers as indexed by the Science Citation Index-Expanded (sciencedirect.com). The herpes simplex virus, also identified as HSV, is an infection that causes herpes. Herpes can perform in several parts of the human body, most normally on the genitals or mouth. HSV-1: mostly causes oral herpes, and is commonly answerable aimed at cold sores and fever blisters everywhere the mouth and on the face. The herpes simplex virus the disease transmitted through sexually was transmitted, a DNA virus that has two serotypes: HSV-1 and HSV-2. HSV-1 is in control for almost altogether suitcases of spoken herpes and for approximately fifty percent of the first episode of genital infections. HSV-2 is the standard serotype that causes repeated or subclinical genital contamination. This virus type 1 and 2 cause a multiplicity of plain indicators in persons.

Appears to be heterogeneous due to varying degrees of knowledge among French health care providers Management of genital herpes in pregnancy, a few months after that study highlights the urgent need for national (Heggarty, et al 2020). Through reactivation of varicella-zoster virus caused Herpes zoster is a dermatomal viral infection (Sawant, S. P., Amin, A. S., & Kumar, S., (2012). This best part of the need to declare the rubella vaccine and impartance human health in the Countrywide Immunization Program of India and That research offers epidemiological data for rubella, Herpes Simplex Virus (Singh, M. P., et al 2016). HSV types 1 and 2 cause variability of plain appearances in humans. HSV-induced experimental syndromes must be prohibited by vaccination, but the two most important problems ascend. 1st while several antiviral vaccines have positively prohibited disease, nobody has prevented infection. The United States is successfully supported out in the intermission among nursery and high school, and up till now the vaccines must confer protection for a long time after vaccination while HSV disease primarily affects more than 18 years old, mass immunization (Roizman, B.,1991). Both herpes simplex virus type 2 (HSV-2) seroprevalence and the proportion of HSV-1 genital ulcers are increasing in industrialized countries. The genital shedding of HSV and vertical transmission, have been poorly evaluated both the consequences of these epidemiological changes, in pregnant women in France (LeGoff, J., 2007). More than one thousand peoples were identified as Herpes zoster in the United States. Most of them didn't doctors aware of this disease as a cause of extreme pain, its manifestation, and the action choices (Sheibani-Rad, S., & Farsar, C. (2019). The public contagious reasons contain Herpes simplex virus, Rubella virus, (HSV), Cytomegalovirus (CMV) Toxoplasma gondii, and Treponema pallidum (Kaur, R., et al., 1999). They the number of helpful circumstances was minor than negative cases that paper suggestive of the involvement of several herpes viruses as agents of autoimmunity (Ordoñez, G., et al 2020). Since1990 identify the double foremost hospitals of the state discovered that there had been an epidemic of

Herpes Simplex since the dermatology departments. Showing for HIV in regions where the dual problem of IDU and HIV exist in young grown persons must be documented by Herpes Simplex as a marker condition related to tuberculosis indicating the necessity (Panda, S., et al 1994). Perceived in association with multidrug-resistant *Aeromonas hydrophila* infection in goldfish, *Carassius auratus*, since profitable farms from that is occurrence Burst details of a mortality occasion where cyprinid herpes virus-2 (CyHV-2) (Sahoo, P. K., et al 2016). This research was to identify polymerase chain reaction (PCR) through contained in the interior 120 children below the age of six years presenting with congenital waterfall and diagnosed using serology. (Singh, M. P., et al., 2016). Antigen discovery indirect IF is a rapid and sensitive diagnostic instrument for Herpes simplex keratitis since HSV (Herpes Simplex Virus). The detection of HSV-specific tear sIgA is a respected adjunct to virus isolation antigen detection in the test center analysis of Herpes simplex keratitis, Tear secretory IgA (sIgA) is a particular marker for acute herpetic keratitis (Pramod, N. P., et al (1999).

2. Material and methods

All data analyzed in this education was downloaded from four databases (Web of Science Core Collection: Citation Indexes, Science Citation Index Expanded (SCI-EXPANDED) -2000-2018, Conference Proceedings Citation Index-Science (CPCI-S) -2000-present and Emerging Sources Citation Index (ESCI) -2005-2014) and Auto-suggest publication names "ON", Default Number of Search Fields to Display; 1 Field (Topic) delivered by Web of Science (WoS). The keywords we searched for in detail were "herpes" All items published during the period of 2015 to 2019 were involved in the study. We excluded all papers published in 2019. Documents published from all over the World. We used HistCite Software, Microsoft Excel, VOSviewer and SPSS (version 22.0) to execute statistical analyses. We created info illustrations showing country research distribution indication of herpes literature by using GunnMap free resource. We created scientometric linkages viewing co-authorship, practice density, and of the relations of keywords in the papers and the relationships of institutions. The further seen keywords, authors, and institutions shaped the greater circle than the others with lower practice in network pictures. Linked and associated keywords, institutions, and authors were placed close to each other with the same color. Network images were created by using free VOSviewer software in our study.

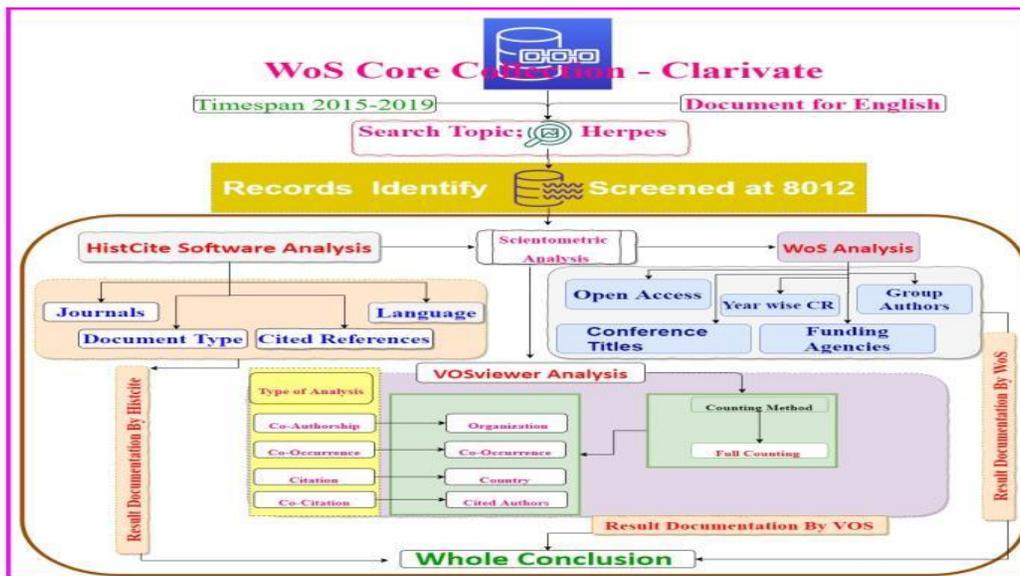


Figure 1. A graph of the current investigation in Herpes Research

3. Results and discussion

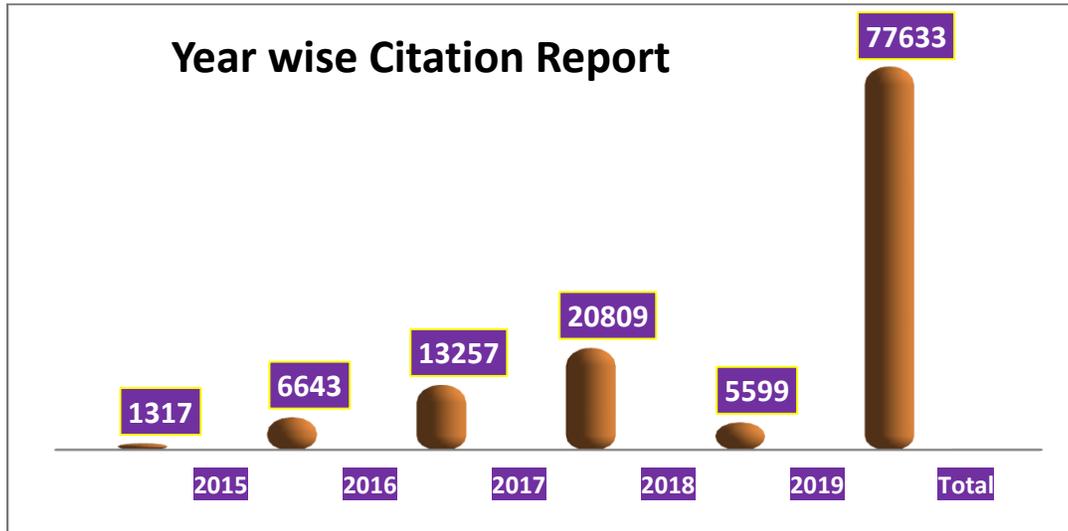


Figure 2. Year wise citation reports in herpes

WoS can provide citation status for yearly, just as shown in Fig. 1, the size of nodes reproduces the citation frequency of years. Shows the highest (20809) cited the year 2018 in this area more in the detailed following 2017 (3257) is the most powerful year in the field of herpes, with a citation frequency of 6643 the year 2016, 2019 (5599) are based on their citation frequencies, and finally, 2015 (1317) lows cited in the record of herpes.

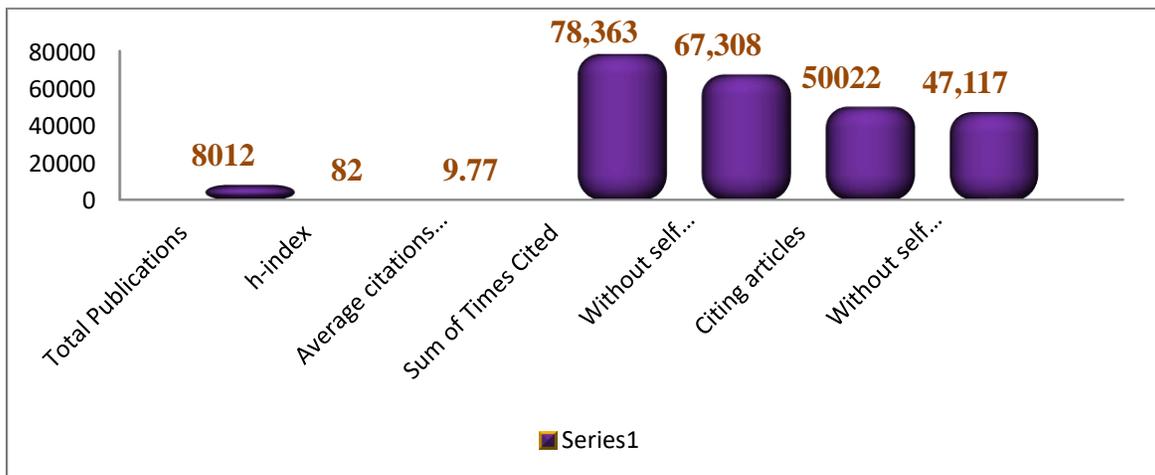


Figure 3. Overall articles data citation reports

Likening overall the average relative citation impact of dissimilar right to use types in the herpes has documented 8012: H-Index values (82) was based on a list of herpes publication ranked in descending order by the times cited count, average citations per article are the average quantity of citing articles for all articles in the results set ACPI is the sum of the times cited count divided by (9.77 percent). The Sum of times cited (78,363) is the total quantity of citations to all articles in the herpes result established, without self-citations is the total quantity of citations, but with citations from other articles in the citation report not count. Fig.3. above defines these verdicts.

Table 1. Document Type data in Herpes

S.No.	Document Type	Recs	Percent	TGCS	NA	H-Index
1	Article	5285	66.00	55202	37735	68
2	Review	1167	14.60	20025	5049	55
3	Meeting Abstract	763	9.50	43	4327	2
4	Editorial Material	290	3.60	625	817	10
5	Letter	273	3.40	387	1134	8
6	Article; Proceedings Paper	66	0.80	398	431	11
7	Proceedings Paper	54	0.70	14	252	2
8	Correction	41	0.55	23	250	2
9	Review; Book Chapter	27	0.32	499	69	14
10	Article; Book Chapter	18	0.28	285	55	6
11	News Item	16	0.25	5	21	2
12	Reprint	4	0.00	19	13	2
13	Biographical-Item	3	0.00	1	3	1
14	Editorial Material; Book Chapter	2	0.00	5	2	1
15	Article; Data Paper	1	0.00	2	6	1
16	Hardware Review	1	0.00	1	2	1
17	Retraction	1	0.00	2	6	1
		8012	100.00	77536	50172	

Table 2. Conference Titles data in Herpes research

Conference Titles	records	% of
Annual meeting of the association for research in vision and ophthalmology	66	0.82
Annual European congress of rheumatology EULAR	13	0.16
Annual meeting of the American association of immunologists AAI	13	0.16
Annual scientific meeting of the American college of gastroenterology ACG	12	0.15
Annual scientific meeting of the American geriatrics society AGS	12	0.15
Annual meeting of the American academy of dermatology AAD	10	0.12
82nd annual scientific meeting of the American college of gastroenterology ACG	9	0.11
71st annual meeting of the American academy of neurology AAN	8	0.10
81st annual scientific meeting of the American college of gastroenterology	8	0.10
Annual meeting of the association for molecular pathology AMP	8	0.10

Our search for herpes collected works recovered a total of 8012 papers (Access date: May 13th, 2020) from 4 data banks, and only 4358 items of which were open-access Web of Science Core Collection included 54.39 % of entire papers in the collected works. Table 1. We have detected that the great majority of the documents were original articles (n=5285, 66.00%) followed by the Review, Meeting abstract, and Editorial Material (14.60 9.50 and 3.60%, correspondingly). Another noticed that the excessive widely held of author-contributors were original articles (37735) keep an eye on by Review, Meeting, and Letter (5049, 4327 and 1134). Types of documents get the top four H-Index monitored by Article, Review, Review; Book Chapter, and Article; Proceedings Paper (68, 55, 14, and 11).

The keyword search approaches revealed in Section table 2. We're meeting to identify relevant academic articles in conference titles, which have been brief. The majority of academic publications on herpes are found in conference proceedings that make considerable contributions to the field are the Proceedings of the highest (0.82 percent) were from Annual meeting of the association for research in vision and ophthalmology, second place two organizations following by Annual European congress of rheumatology EULAR, and Annual meeting of the American Association of immunologists AAI (0.16 percent), the third-place occupied again two organization following by Annual scientific meeting of the American College of Gastroenterology ACG, and Annual scientific meeting of the American geriatrics society AGS (0.15 percent), fourth and fifth place occupied only individual annual meeting by Annual meeting of the American Academy of Dermatology AAD (0.12 percent), and 82nd annual scientific meeting of the American College of Gastroenterology ACG (0.11 percent), and sixth position occupied three organization 71st annual meeting of the American Academy of Neurology AAN, 81st annual scientific meeting of the American College of Gastroenterology, and Annual Meeting of the association for molecular pathology AMP (0.10).

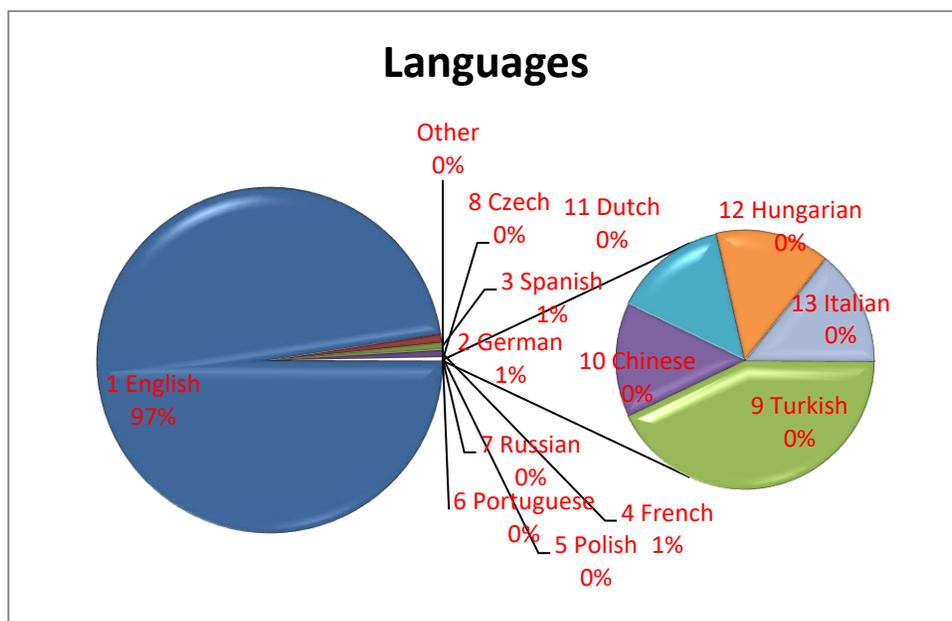


Figure 4. Languages data in Herpes

Fig 4. Show that English was the primary language of herpes literature with 8012 papers (97.60%) and major non-English languages were German, Spanish, French, and Portuguese (0.80, 0.70, and 0.60) other countries below 0.10% respectively are articles published.

Table 3. Displayed that the Institute wise top 10 most productive authors by the number of journal publications are listed in above the table with Wald A (University of Washington), Zhang Y (Hubei University of Technology), BenMohamed L (University of California), and Johnston C (University of Washington) in the top four places. The author is the topic of educational message and connections for the reason that documents, journals, or organizations cannot vigorously subordinate by both others. The co-authorship linkage is an essential source for the investigation of several kinds of co-occurrence interactions.

Table 3. Institution wise Top 10 Author data in Herpes

Author	Institution	Country	Count	Percent
Wald A	University of Washington	United States	50	0.60
Zhang Y	Hubei University of Technology	Peoples R China	37	0.50
BenMohamed L	University of California	United States	34	0.40
Johnston C	University of Washington	United States	30	0.40
Shukla D	University of Illinois at Urbana-Champaign	United States	30	0.40
Wang Y	Nankai University	Peoples R China	29	0.40
Kawaguchi Y	The University of Tokyo	Japan	27	0.30
Srivastava R	University of California	United States	27	0.30
Zhang J	Centers for Disease Control and Prevention	United States	27	0.30
Chen L	The University of Alabama at Birmingham	United States	25	0.30

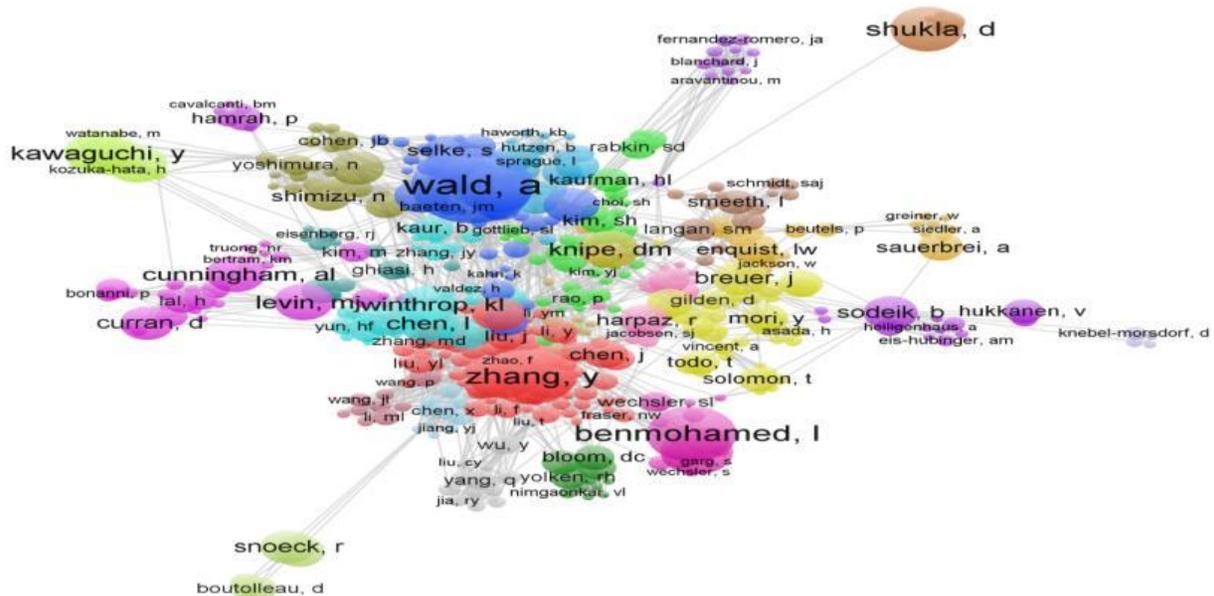


Figure 5. Co-authorship network in Herpes.

A co-authorship network is shown in Fig. 5, where each node represents an author and the edges mean collaborative actions. There were 500 nodes and 609 links. The maximum number of the document on author 5 for each of the 997 authors, the number of co-authorship links will be calculated. The node dimension signifies the number of publications, and the width of the links specifies the levels of the supportive relationships each year. The colors of links, e.g., yellow, sky blue, green, orange, and red, correspond to different years from 2015 to 2019. The publication period since previous to current is publicized with the color change since an imperturbable quality to heartfelt excellence. There are more than a few study societies in above the figure, viewing that heavy-duty cooperative relationship has been well-known among these authors in the public.

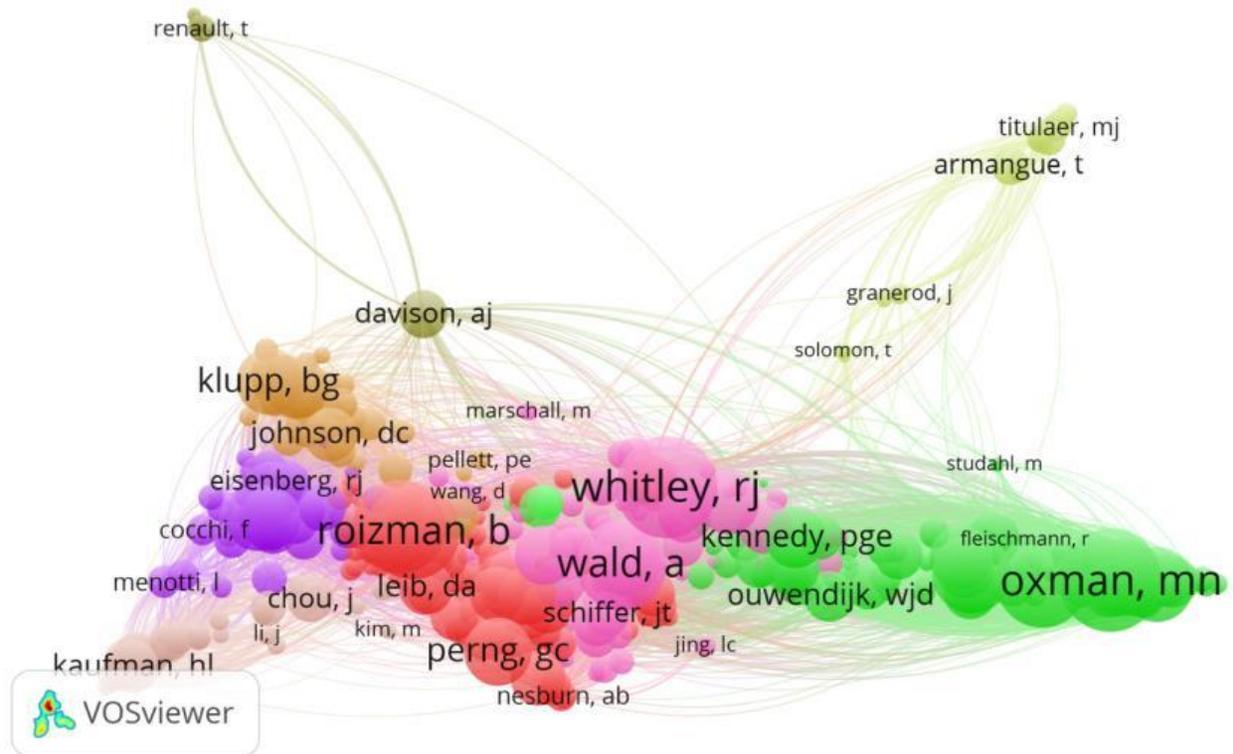


Figure 6. Co-citation wise cited Author analysis

Author co-citation analysis (ACA) is used to identify and visualize the intellectual structure of a chosen academic discipline by counting the frequency with which any work of an author is co-cited with another in the references of citing papers. Author co-citation analysis can identify the relationships among authors whose publications are cited in the same articles. Figure 6. Presents the author co-citation network, containing 500 nodes and 995 links. The size of nodes represents the number of co-citations of authors, and the links between nodes mean indirect cooperative relationships on the basis of co-citation frequency. The most highly cited authors were Oxman MN (frequency= 377, United States), Whitley, RJ (frequency= 127, United States), Roizman B (frequency = 92, United States), Wald A (frequency = 60, United States), Kennedy PGE (frequency = 27, United Kingdom.), Klupp BG (frequency=26, Germany), Armangue T (frequency = 20, Spain), Renault T (frequency=20, United States), have further contributions to the request of herpes in the structure industry than Oxman MN who gave a clear description of herpes. The variety in the place of the greatest highly cited authors establishes that herpes study has been achieved broadly everywhere the world. On the betweenness centrality metric, the top three authors were Oxman MN (centrality= 4.70), Whitley, RJ (centrality= 0.80) and Roizman B (centrality= 0.70). In terms of medical-related take in writing scientific papers of dissimilar kinds which include supervisory and research-related papers, disease, or drug-related education. The high centrality is because Roizman gave a widely cited definition of herpes. The impact of Oxman MN and Whitley, RJ on the growth of herpes have been more verified by their great excellence study and high rate of recurrence of secondary cooperative associations. They simplified the growth of herpes study among dissimilar research societies. As an author with high citation regularity does not essentially accept a high betweenness centrality, authors with together great citation regularity and great betweenness centrality is very likely to have a strong effect on the growth of herpes study.

nations. 84 countries are represented for the period 2015-2019, The United States occupies a central part in positions of publications and citations acknowledged, with other nations such as Peoples R China, Germany, France, Australia, England, Belgium, Spain, and Scotland also contributing highly. Completely provided were VOSviewer 12 clusters, but we had taken by only five clusters arisen. Cluster 1 (Yellow) corresponding to many selected European countries, as well as France, Italy, Turkey, and Poland. Cluster 2 (Sky Blue) involves mainly countries from the USA, UK, South Africa, Qatar, Norway, and Kenya. Cluster 3(Red) consists of South Korea, Brazil, Mexico, and Malaysia. Cluster 4 (Blue) consists of Belgium, other countries in the Netherlands, and one country Finland. Cluster 5 (Pink) consists of dual countries one India, and another one Taiwan. The citation relationship for this period establishes strong citation leanings established on earthly closeness or countries with historic ties to further countries.

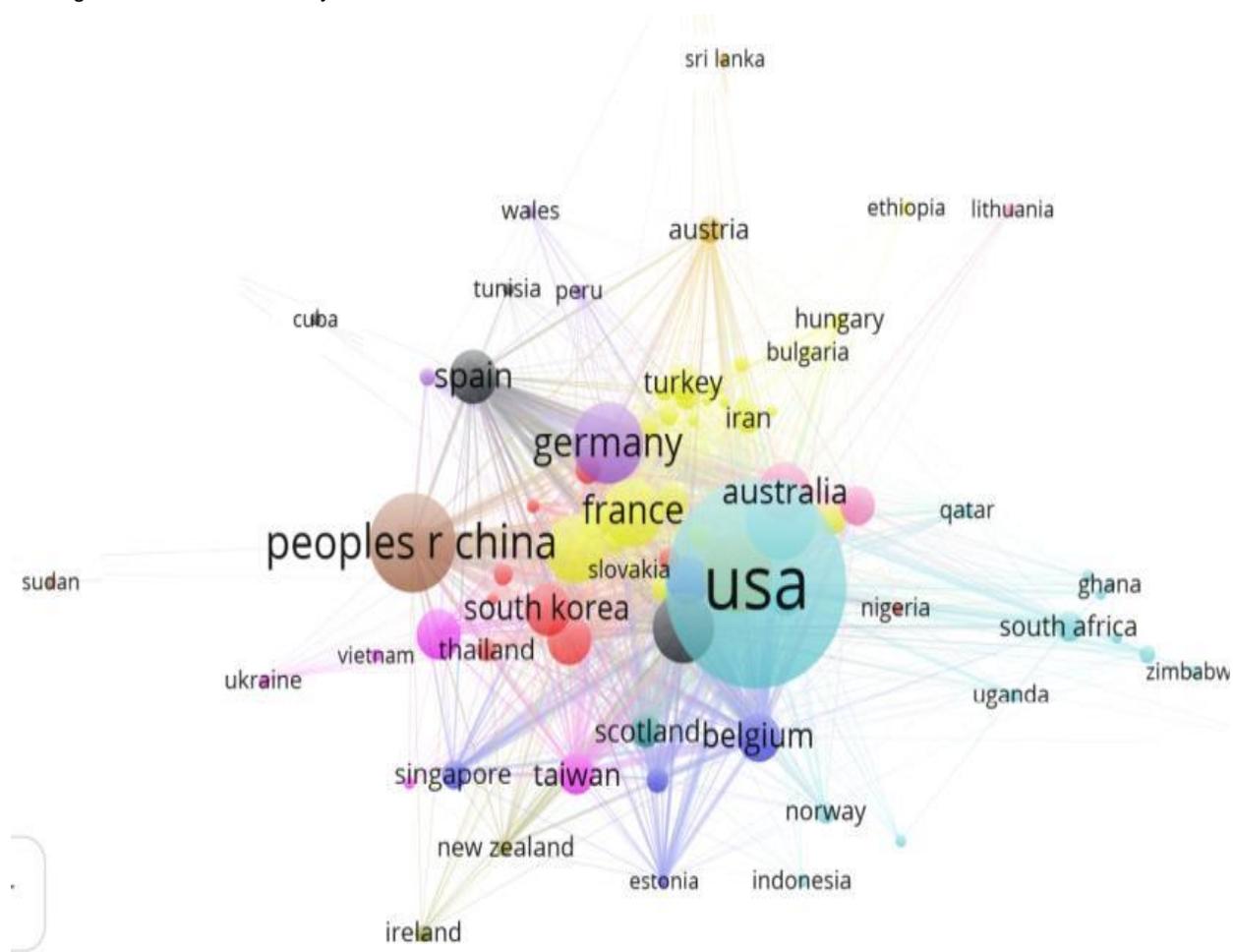


Figure 7. Country wise Citation Analysis

Table 4. Paper Cited Reference analysis studies a linkage of cited mentions. Normally, the mentions cited in the particular journals deliver the awareness base of these journals. Accordingly, complete investigating the co-cited mentions, Cited Reference accurately discovered the fundamental awareness base of the herpes study area. The top 5 cited papers are itemized in above the table. Rendering to the citation metric in Oxman MN, et al. (377), Lal H, et al. (202), Gnann JW, et al. (192), Harpaz Rafael, et al. (191), and Yawn BP, et al. (177) were the top five cited journals. These journals were extensively documented by landed gentry and had great worth for studying herpes.

Table 4. The top 5 Cited Reference among the 8012 Journals data 2015–2019.

Year	First author	Journal	Total citations
2005	Oxman MN	The New England Journal of Medicine (NEJM), V352, P2271	377
2015	Lal H	The New England Journal of Medicine (NEJM), V372, P2087	202
2002	Gnann JW	The New England Journal of Medicine (NEJM), V347, P340	192
2007	Harpaz Rafael	Morbidity and Mortality Weekly Report, V57, P1	191
2007	Yawn BP	Mayo Clinic Proceedings, V82, P1341	177

Table 5. The top ten source journals for herpes research data 2010–2019.

S.No.	Journal	Recs	Percent	TGCS	TGCS/t
1	Journal of virology	339	4.20	3306	912.85
2	PLOS one	188	2.30	1735	429.40
3	Scientific reports	95	1.20	801	234.50
4	Investigative ophthalmology & visual science	85	1.10	225	53.10
5	Viruses-basel	83	1.00	812	252.17
6	Vaccine	76	0.90	782	243.68
7	PLOS pathogens	75	0.90	1288	342.30
8	Journal of infectious diseases	69	0.90	770	222.52
9	Sexually transmitted infections	65	0.80	155	44.00
10	Journal of clinical virology	63	0.80	216	58.35

The top 10 source journals for herpes research are listed in Table 5. Journal of virology distributed 339 articles (4.20 %) related to herpes research and occupied the highest place. These resources the paper had more authority in this field and was documented by scholars. PLOS one (188 distributed), Scientific reports (95 distributed), Investigative ophthalmology & visual science (85 distributed) and Viruses-Basel (83), following journals (Vaccine, PLOS pathogens, Journal of infectious diseases, Sexually transmitted infections and Journal of clinical virology) below 80 articles distributed respectively in herpes. The references cited by the 8012 articles were analyzed in HistCite, which produced a journal total global cited score with top 5 cited journals for herpes research are scheduled in above the Board Journal of virology cited 3306 scores (912.85%) occupied the top position, second cited place were occupied following journal PLOS one cited 1735 (429.40), PLOS pathogens cited 1288 score (342.30) were occupied the third position, Viruses-Basel cited 812 (252.17) score were occupied fourth position and Vaccine cited 782 (243.68) score. The results disclose that the articles distributed in these papers expected strong total global citations score completed the consistent period.

The importance and readiness of herpes for funding agencies are moderately reproduced in their managerial graphs, mission statements, and strategic objectives. The managerial charts sometimes attribute the responsibility of herpes to different boards of directors, departments, and/or branches (Table 6). Displays that the United States department of health human services, USA leads the table with its 15.94% of funding provided for herpes related subjects being highlighted in the funding agency followed by the National Institutes of Health NIH USA with 15.48% of fund

providers, National natural science foundation of china with 4.76%, NIH national institute of allergy infectious diseases NIAID with 2.68, ministry of education culture sports science and technology japan and other agencies with Less than 2% of scientific articles were funded. This might indicate that they were the furthestmost significant funding in the field of herpes sharing for the past five years. As can be seen from the funding agencies list, the study of Herpes distribution involves multiple disciplines. Although virology is the leading disciplines, further disciplines are also closely related to herpes involvement, such as sustainable development, human health, and environmental science.

Table 6. Organizational visibility of herpes in funding agencies

Funding Agencies	Records	Percent
United states department of health human services	Percent	15.94
National institutes of health NIH USA	Percent	15.48
National natural science foundation of china	382	4.76
NIH national institute of allergy infectious diseases NIAID	215	2.68
Ministry of education culture sports science and technology japan MEXT	137	1.71
Medical research council UK MRC	121	1.51
German research foundation DFG	117	1.46
Canadian institutes of health research CIHR	113	1.41
NIH national cancer institute NCI	111	1.38
Research to prevent blindness RPB	109	1.36

Open Access on WoS includes freely available peer-reviewed versions of an article since whichever an editor's online or repository. Check the copyright vendor for some recycling or licensing appeal (webofknowledge.com). Table 7. Presents the number and quantity of papers by access category and publication. Articles published in the few years are increasingly open access journals in herpes, and this development displays no indication of reducing. Further, the latest articles are added expected to be open access journals in herpes, by the greatest during the years studied also containing the most open access: 54.39 % of articles published in herpes, following by DOAJ Gold 1725 was contributed in this field, while Other Gold 444 were articles contributed during the period, then Bronze 1619 articles were contributed during the years 2015-2019, Green Published 2861 were respectively contributed in herpes, Green Accepted 706 were articles contributed during the period. DOAJ open-access remains curiously continuous as a quantity of the collected works for all publications years examined.

Table 7. Open Access data in herpes

OA	Records
Open Access	4358
DOAJ Gold	1725
Other Gold	444
Bronze	1619
Green Published	2861
Green Accepted	706

Table 8. Web of Science Index data in herpes

Web of Science Index	Rec.
Science Citation Index Expanded	7964
Conference Proceedings Citation Index-Science	646
Social Sciences Citation Index	333
Index Chemicus	62
Book Citation Index–Science	47
Conference Proceedings Citation Index-Social Sciences and Humanities	3
Arts and Humanities Citation Index	1
Current Chemical Reactions	1

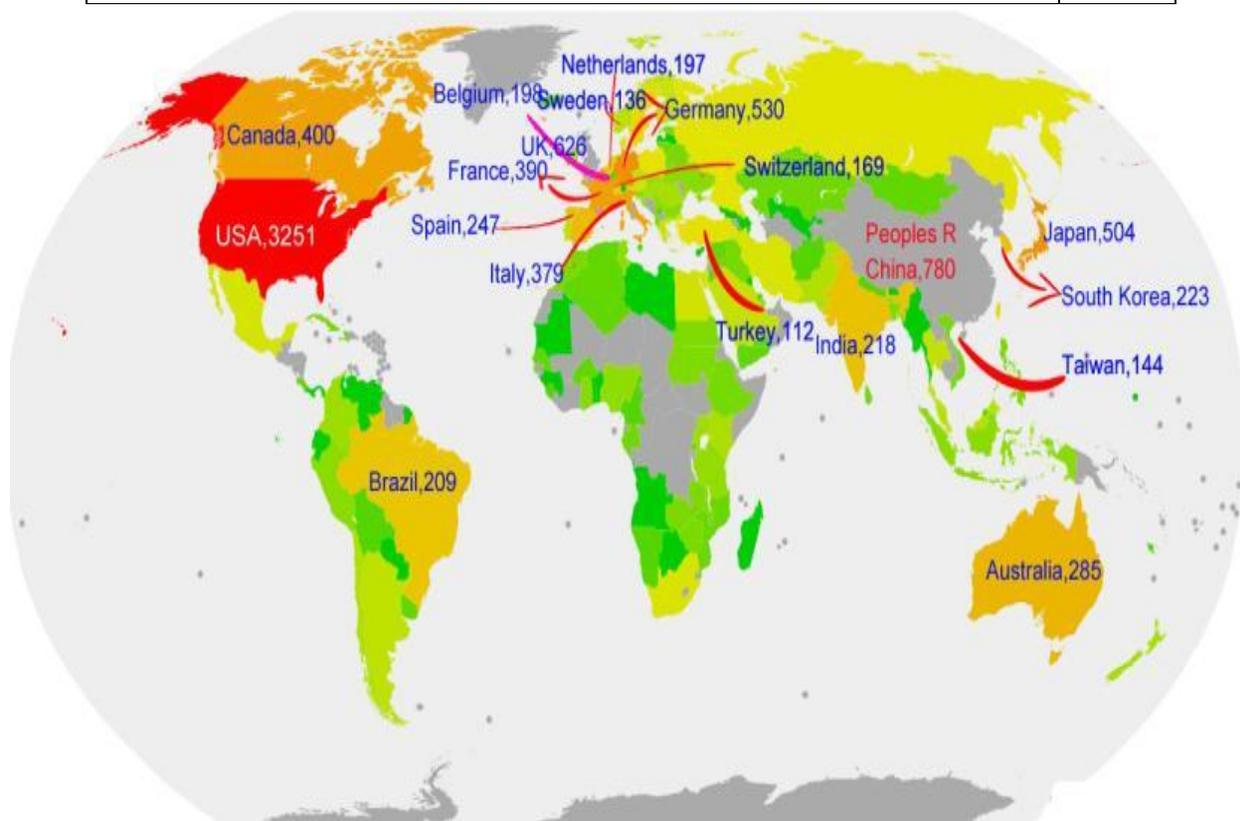


Figure 8. Literature growth and geographic distribution in Herpes

The major limitation of the present study is the opportunity of the data collection and the indexing follows of Web of Science. While Web of Science indexes several thousands of periodicals and further study publication locations, and the authors have been complete with their collected works search, no database classification will include entirely journals in which research on the related virus and diseases are published. Nowadays WoS is providing so many indexing databases in all fields. Table 8. Showed that to WoS index data in Herpes field 8 databases, topmost(7964) from Science Citation Index Expanded pure science-based cited articles, while by 646 from research Conference Proceedings Citation Index-Science, 333 cited articles from Social Sciences Citation index, 62 cited articles from Index Chemicus, 47 cited articles from Book Citation Index–Science, 3 cited Conference Proceedings Citation Index-Social Sciences and Humanities articles from, and finally, a single article from Arts and Humanities Citation Index and Current Chemical Reactions.

Fig. 8. Summarizes to 20 countries the absolute contributions to Herpes research over the study period in 5-year intermissions as indexed by WoS. The 5-year intermissions were used to smooth any yearly differences. Based on the total number of records (11000), there has been more than fourfold growth in the literature produced annually over the study period 2015-2019. While publications by investigators based in the European continent to provide the largest number of publications, there has been wonderful progress in the publication by researchers based in the Asian Continent. Couples of the country from the North American Continent, and single country from Australia and South America.

Conclusion

Towards the greatest of our information, our research is the leading scientometric and analysis in herpes collected works. Linkage research presented that involving several hospital studies was very occasionally in this area. For example discovered in this investigation foremost countries with the highest number of publications were industrialized countries such as the USA, Peoples R China, and the UK, and the United States department of health human services were spending more funded in herpes related to research very important. Our results authorize the Open Access articles to benefit found by further research, open access articles take delivery of 54% overall documents more articles than otherwise expected in herpes.

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