



Global Research Trends in Norovirus and Dental Health: A Scientometric Analysis (2012-2021)

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ABSTRACT

A scientometric analysis of global norovirus research has been carried out in the years from 2012-2021 based on various scientometric indicators such as publication output, prolific author, collaboration network by author, productive institution, and country. The study search strategy was based on using the related key terms including “norovirus”. A total number of 4711 records retrieved from Web of Science for study period. Data imported in HistCite, R Studio and VOS viewer for analysis and illustration. The researcher showed analysis in the tables, figures, and maps. The country with the most published documents was the USA followed by China and England. The journals of Electronic Library were ranked as the first. The University of California System was the top organization with a high proportion of scientific publications with 5549 citations. This study provides researchers and practitioners an extensive and intensive understanding of the salient research themes and trends of digital library research around the world.

Keywords: Norovirus, Scientometrics Study, Bibliometrics Study, Scientific Visualization, India

1. Introduction

Norovirus is extremely transmissible virus that sources gastroenteritis, which is inflammation in the stomach. It can infect any ages and infection can occur in multiple times because there are many different strains of Norovirus. The symptoms of the diseases are abdominal pain, nausea, vomiting and diarrhoea it is development within 12 to 48 hours after exposure and go away within one to three days. Though, children, older adults and people with other diseases are vulnerable to more plain indications subsequently they are at danger for dehydration from the infection. It rashes more frequent from November to April. It is transmitted by any kind of contact causes the virus to enter the mouth. You can prevent it through using drink plenty of fluids antibiotics and wash your hand often (<https://abcnews.go.com/Health/stomach-flu-chances-norovirus/story?id=60604232>).



Norovirus sufferers may experience symptoms like abdominal pain, nausea, vomiting and diarrhea. (Accessed on 07.08.202, <https://abcnews.go.com/Health/stomach-flu-chances-norovirus/story?id=60604232>)

There are several studies in the field of digital libraries around the world. The present study evaluates the publication growth of global digital library research publications as indexed in Web of Science during 2012-2021.

Background of the study the Study has focused on Dental Research publication performance on Norovirus(Global Level) from 2012-2021. The Study reveals the research productivity worldwide on Norovirus.

Originality/Value of research the Norovirus globally impacted the in research society. This study is very significant in the current scenario to know the growth rate of scientific literature on norovirusglobally.

Limitation of the study has exclusively scrutinized a total number of 4711 research outputs which has indexed in Web of Science in the year from 2012-2021. On the other hand, documents published in others records/sources web of science have not been covered.

2. Objectives of the Study

The following objectives have been framed for the study

1. To find out the year-wise growth rate ofNorovirus Research from 2012-2021.
2. To analyse the total number of countries involved in Noravirusresearch publication
3. To study the total number of organizations involved in research publications on Norovirus.
4. To identify the specific core areas of research on Norovirus.

3. Design/Methodology/approach

This study identified academic journals withNorovirusresearch publications from the Web of Science (WoS) Core Collection database. The search resulted in 4711records in all during 2012-2021. The downloaded data contained the information about the type of documents like research articles, reviews, proceeding papers, editorials, and book chapters, etc, name of the author(s) with their affiliation(s), year of publication, name of the publishing journal with its place of publication and citations obtained by each article, etc. The downloaded data was analysed using MS Excel and Bibliometrics tools to meet the objectives described above.

4. Data analysis and Interpretation

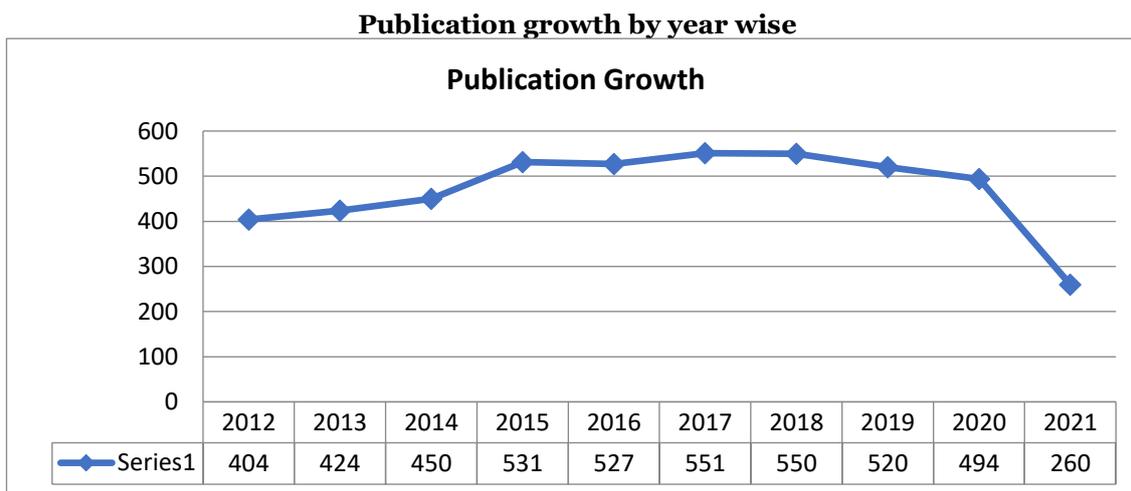


Figure 1. Publication Growth by Year on Norovirus Research in World

Figure 1 indicates the year wise distribution of norovirus Research output at the World from 2012-2021. A total of 4711 documents published during the study period. The highest number of publications is in the year 2012 with 551 records, followed by 550 papers in the year 2020, next in the year of 2011 with 531 (21.29%) publications. 2021 year is the lowest articles published i.e. 260.

Productive author on norovirus

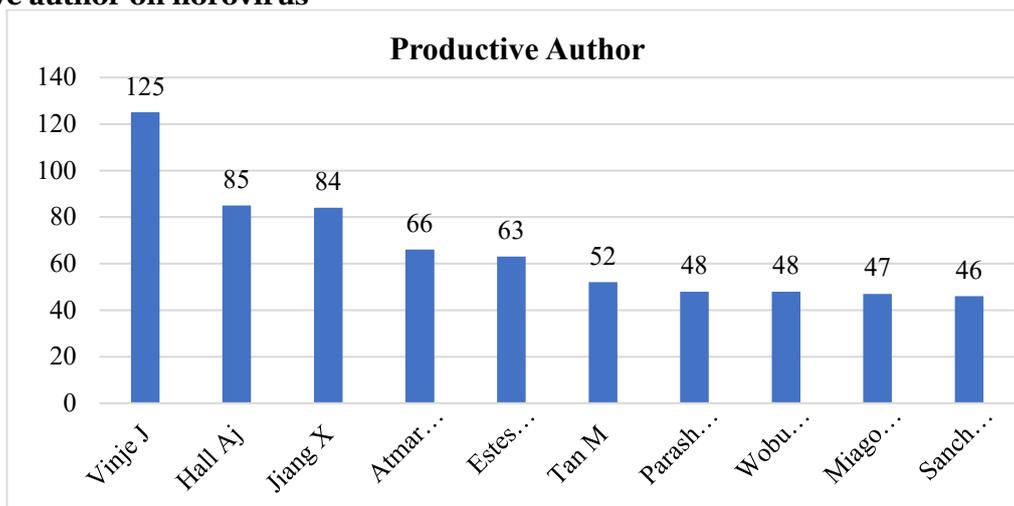


Figure 2. Productive author on Norovirus research at the world

Figure 2 shows that top ten authors written between 2012 to 2021. It was interesting to know who was the most productive articles written in the field of norovirus research during the study period. According to research written by authors that Vinje J with 125 articles was the most productive Scientist in norovirus research. Hall AJ has written 85 articles and ranked second position. Jiang X and Hazen EL each with 84 articles appeared in the next positions, and Sanchez G has lowest articles published with 46 articles respectively.

Table 1. Author impact on norovirus research

Sl. No.	Name of Author	h-index	g-index	m-index	Citation	NP
1	Vinje J	34	74	3.4	5622	125
2	Hall Aj	29	68	2.9	4708	85
3	Jiang X	27	42	2.7	2141	84
4	AtmarRl	24	41	2.4	1815	66
5	ParasharUd	24	45	2.4	3263	48
6	Estes Mk	23	40	2.3	1755	63
7	Tan M	22	33	2.2	1238	52
8	Lopman Ba	20	41	2	2528	44
9	Green Ky	19	37	1.9	1418	42
10	Virgin Hw	19	25	1.9	1846	25

The analysis of author productivity examines the prevailing trend in carrying out research in any discipline of science. Out of the various disciplines of science the analysis of author productivity in norovirus. Table 1 shows that author Vinje J got the highest citations of 5622 with highest h-index of 34, which is followed by Hall Aj has scored 4708 citations and h-index of 29. Among the top 10 authors, Vinje J got highest g-index and m-index received with 74 and 3.4 followed by the author Hall Aj with 68 g- index and 2.9 m-index.

Sources of norovirus

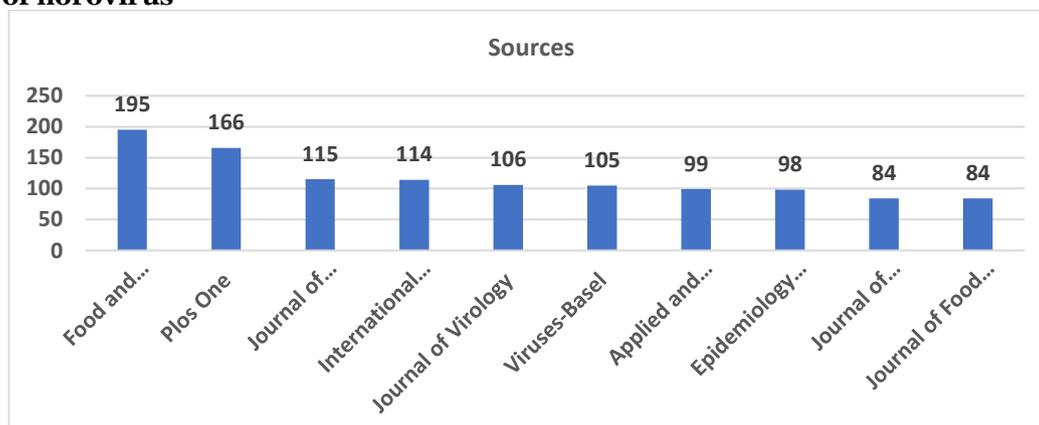


Figure 3 sources on norovirus research

According to Clarivate Analytics, the journal selection process for Emerging Sources Citation Index focus on documents publishing standards and editorial content criteria when adding into the database—peer-review, ethical publishing practices, electronic format, full-text English, and English language bibliographic data. Between the years 2012 and 2021, there are 835 journals published 4711 articles. It is identified from the figure 3 shows 10 journals out of 835 journals, Food and Environmental Virology has published in first place of research output in the field of norovirus with 195 articles followed by Plos One with 166 articles and occupies the second position and Journal of Medical Virology with 115 and it stands third position.

Table 2. Sources impact on norovirus

Sl. No.	Name of Journal	h-index	g-index	m-index	Citation	NP
1	Journal of Virology	35	53	3.5	3362	106
2	Applied and Environmental Microbiology	32	47	3.2	2835	99
3	Plos One	31	49	3.1	3551	166
4	International Journal of Food Microbiology	30	42	3	2441	114
5	Water Research	30	42	3	2146	80
6	Food and Environmental Virology	25	37	2.5	2514	195
7	Journal of Clinical Microbiology	24	41	2.4	2330	43
8	Journal of Infectious Diseases	24	43	2.4	1911	65
9	Emerging Infectious Diseases	22	43	2.2	1959	61
10	Epidemiology and Infection	22	39	2.2	1854	98

Table 2 reveals the contribution of top ten journals in norovirus research. It is observed from above analyses the highest scores of citations, h-index, g-index and m-index values. The first place goes to journal of Plos One publication in terms of Citations with 3551 followed by Journal of Virology with 3362, and Applied and Environmental Microbiology with 2835 and remaining contribution by other journals. The researcher also observed that the Journal of Virology received highest 35 h-index, 53 g-index and 3.5 m-index.

Institution wise on norovirus

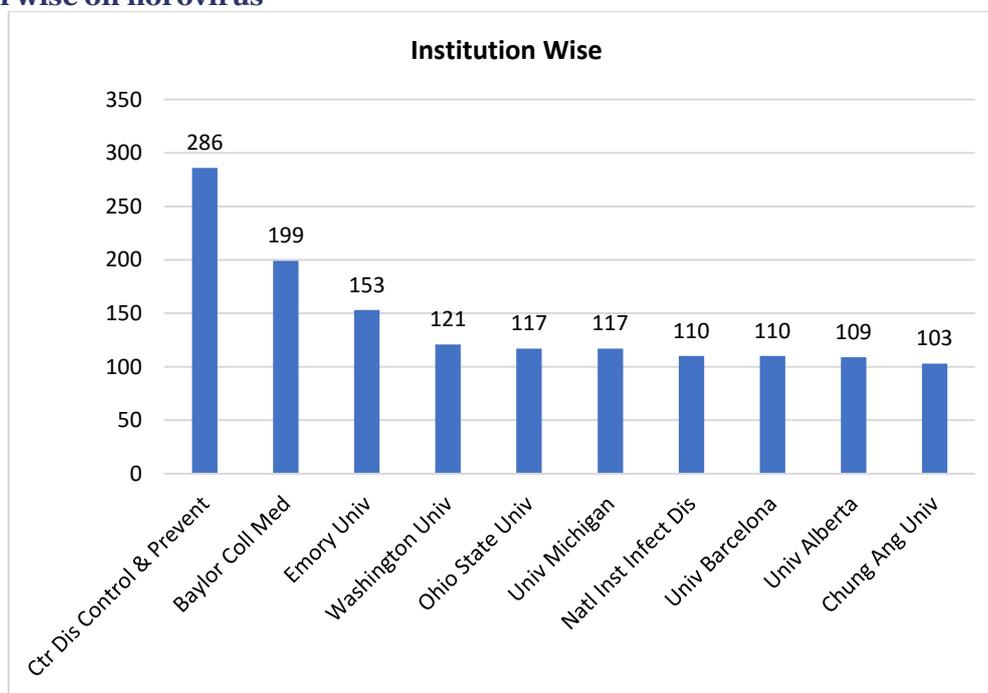


Figure 4. Institution wise on norovirus research

The study of institution/organization wise growth rate in norovirus research output is considered to be an important attribute of scientometric/bibliometric analysis. Depending on the nature and latent functions of the institution, the research prosperity seems to be greater or lesser. The figure 4 shows that ten top ones published 1425 in the field of norovirus research. It is noted that out of the 4711 records of the publication, Ctr Dis Control & Prevent has contributed the highest number of research publications 286 followed by Baylor Coll Med has contributed the second highest number of research publications 199, and Emory University has contributed the third highest number of research publications with records 153 stands third and others.

Papers shared by country

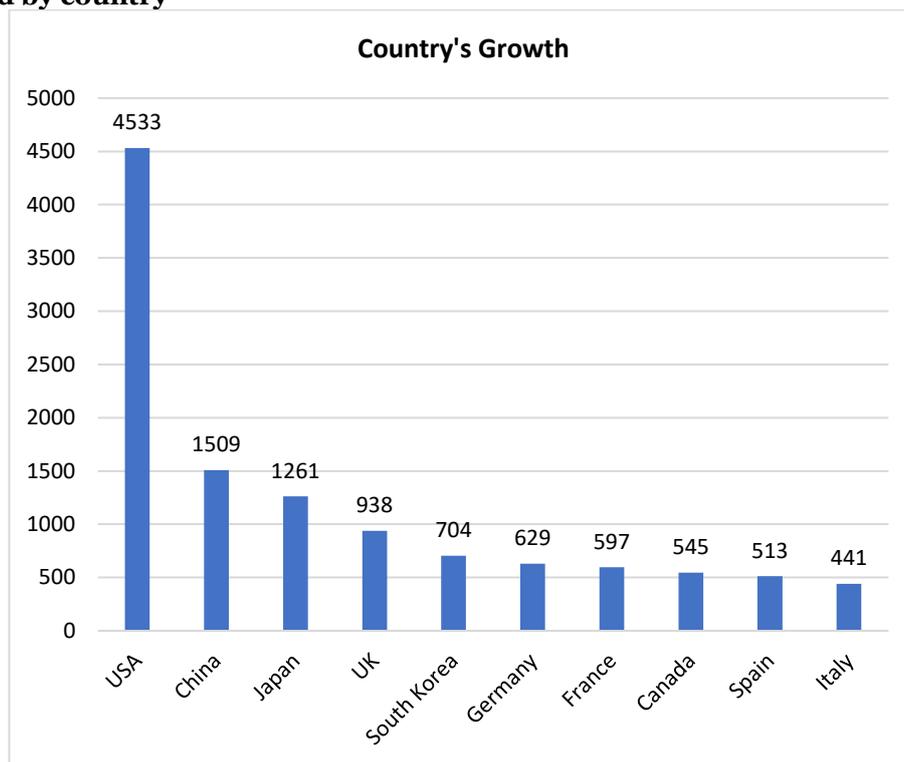


Figure 5. Papers shared by country on norovirus research

The Figure 5 reveals the country wise distribution in norovirus covered by the study period. Totally 121 countries have contributed 4711 of publications and shared publications of total output. The USA has the highest productivity with 4533 records followed by Peoples R China has the highest publications 1509 of articles and it stands second and Japan with 1261 articles and scored third position. Italy has published 441 articles among ten countries and it stand ten positions

Table 3. Co-occurrence keywords on norovirus

Sl. No.	Words	Occurrences
1	gastroenteritis	813
2	united-states	590
3	norovirus	566
4	infection	499
5	murine norovirus	494
6	outbreaks	443
7	children	415
8	enteric viruses	412
9	norwalk virus	408
10	feline calicivirus	327

The important words called keyword one of the best indicators to understand and grasp instantaneously the thought content of the papers, methodologies used and areas of research addressed to the word of norovirus 566 records with third rank of the frequency. Table 3 presents the top 10 keywords used by the researchers in their publications. It has clearly seen from the table that the word gastroenteritis has used in 813 records, followed by the word united-states in 590 records and the word norovirus has used in 566 records, followed by the word infection in 499 records.

Three-field Plot (Sankey diagram)

A three-field Plot (Sankey diagram) of Keyword, Affiliation and Country was created to depict the proportion of research topics for each country and the recency of the papers that they cited. As shown in Figure 6, the main interests of norovirus researchers in USA and other country. Most of the papers that discussed consent have published by USA, Canada and Japan.

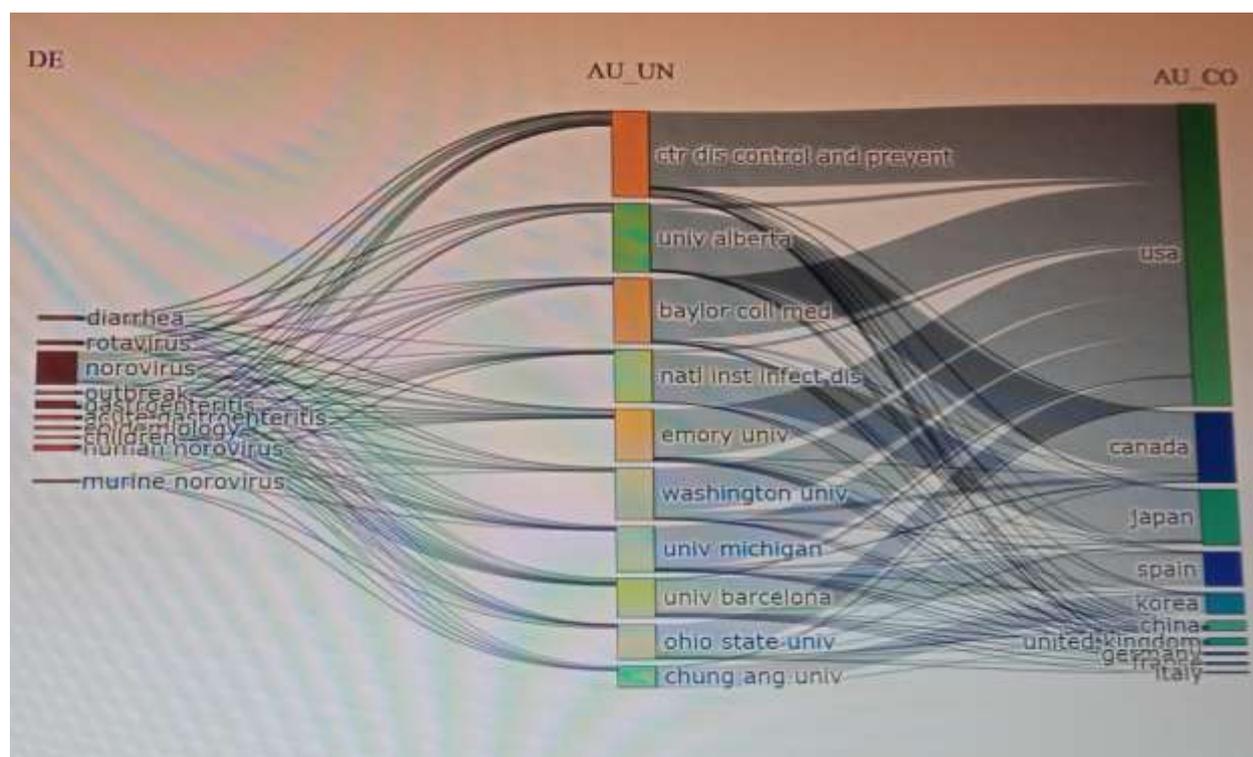


Figure 6. Three-field Plot (Sankey diagram) on norovirus research

5. Major findings of the study

- Vinije J with 125 articles was the most productive Scientist in norovirus research, Hall AJ has written 85 articles and ranked second position, Jiang X and Hazen EL each with 84 articles appeared in the next positions and Sanchez G has lowest articles published with 46 articles respectively.
- Among the top 10 authors, Vinije J got highest g-index and m-index received with 74 and 3.4 followed by the author Hall Aj with 68 g- index and 2.9 m-index.
- The researcher also found that the Journal of Virology received highest 35 h-index, 53 g-index and 3.5 m-index.
- It is noted that out of the 4711 records of the publication, Ctr Dis Control & Prevent has contributed the highest number of research publications 286 followed by Baylor Coll Med has contributed the second highest number of research publications 199, and Emory University has contributed the third highest number of research publications with records 153 stands third and others.
- The USA has the highest productivity with 4533 records followed by Peoples R China has the highest publications 1509 of articles and it stands second and Japan with 1261 articles and scored third position.
- Most of the papers that discussed consent have published by USA, Canada and Japan.

6. Conclusion

Norovirus Research output in the World from 2012-2021, a total of 4711 documents published during the study period. The highest number of publications is in the year 2012 with 551 records, followed by 550 papers in the year 2020, next in the year of 2021 with 531 (21.29%) publications. 2021 year is the lowest articles published i.e. 260. This information works more seriously on this disease and may be useful to conduct current or future research on the best topics and gaps in this disease and to gain access to top positions among other documents and publications.

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