Global Research Publications on Helicobacter Pylori from SCOPUS Database (2001-2020): A Scientometric Study

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Abstract
The purpose of this study is to measure and analyze the research publications on Helicobacter Pylori by extracting data by using the Scopus online database for a period of twenty years from 2001 to 2020. This study finds out the year-wise growth of publications, contribution by document type, authors, journals, organizations and language-wise publications in the field of Helicobacter Pylori research.

Keywords: Scientometric, Bibliometric, Helicobacter Pylori, Scopus

Introduction

Helicobacter pylori bacterium (H. pylori) is the first officially recognized carcinogen. Over half the world's population is colonized with this bacterium, the best-known gram-negative bacteria. Because histopathological changes induced gastric mucosa, the Helicobacter pylori infection represents a determining factor in the occurrence of gastrointestinal disease that can range from chronic gastritis without clinical symptoms to serious neoplastic diseases. In many cases, the clinical signs of upper gastrointestinal bleeding are the first symptom of gastrointestinal infection with Helicobacter pylori. The disease is the result of complex interactions between host and bacteria.

Barry Marshall and Robin Warren were first to describe the isolation and culture of a bacterium in the human stomach, later known as H. pylori. Their experiments on themselves using self ingestion and those on volunteers showed that bacteria could colonize the human stomach and induce inflammation of the stomach mucosa. Later research has shown that colonization of H. pylori can cause chronic gastritis, peptic ulcers, and gastric lymphoma mucosa-associated lymphoid tissue (MALT) or gastric cancer[1].

The Objective of the Study

- To study the year wise growth of research publication in Helicobacter Pylori
- To study the type of document in Helicobacter Pylori research publications
- To identify the top ten most productive authors in Helicobacter Pylori research
- To identify the contribution of top ten Journals and Organizations
- To analysis the contribution of the top ten most productive countries
- To examine the Language-wise Helicobacter Pylori research publications

Methodology

This study focused on the scientometrics analysis of Helicobacter Pylori research publications and the data were collected from the SCOPUS online database from 2001 to 2020 on 18th February 2021. The following search strategy is used to collect the data for this study "TITLE ("Helicobacter pylori" OR "H. pylori" OR "Campylobacter pylori" OR "Campylobacter pyloridis" OR "Helicobacter nemestrinae" OR "Campylobacter pylori subsp. Pylori") AND (LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2017) OR LIMIT-TO (PUBYEAR, 2016) OR LIMIT-TO (PUBYEAR, 2015) OR LIMIT-TO (PUBYEAR, 2014) OR LIMIT-TO (PUBYEAR, 2013) OR LIMIT-TO (PUBYEAR, 2012) OR LIMIT-TO (PUBYEAR, 2011) OR LIMIT-TO (PUBYEAR, 2010) OR LIMIT-TO (PUBYEAR, 2009) OR LIMIT-TO (PUBYEAR, 2008) OR LIMIT-TO (PUBYEAR, 2007) OR LIMIT-TO (PUBYEAR, 2006) OR LIMIT-TO (PUBYEAR, 2005) OR LIMIT-TO (PUBYEAR, 2004) OR LIMIT-TO (PUBYEAR, 2003) OR LIMIT-TO (PUBYEAR, 2002) OR LIMIT-TO (PUBYEAR, 2001))".

During the twenty years of the study period, 25685 research publications are identified and analyzed the year-wise growth, document type of the research publication in Helicobacter Pylori and also the contributions of top ten countries, authors, journals and institutions.

Data Analysis and Interpretations

Table 1: Year-wise H. Pylori Research Publications

Year	Documents	Percentage (%)
2001	1529	5.95
2002	1536	5.98
2003	1444	5.62
2004	1368	5.33
2005	1432	5.58
2006	1322	5.15
2007	1210	4.71
2008	1132	4.41
2009	1190	4.63
2010	1189	4.63
2011	1158	4.51
2012	1190	4.63
2013	1276	4.97
2014	1304	5.08
2015	1218	4.74
2016	1342	5.22
2017	1193	4.64
2018	1139	4.43
2019	1228	4.78
2020	1285	5
	25685	**100**

Table 1 shows the year-wise research publications in H. Pylori during the twenty-year study period between 2001 and 2020 with 25685 research publications. From the study, it identified that the maximum of 1536 (5.98%) publications in the year

1 "Attempt to Fulfil Koch's Postulates for Pyloric Campylobacter - PubMed."

2002, followed by 1529 (5.95%) publications in the year 2001 and 1444 (5.62%) publications in 2003. Then, there is a gradual decrease and fluctuation in the publications till 2020, but there was a slight increase in 2016 with 1342 publications (5.22%) even though there is no significant growth in publications.

Table 2: Type of Document in H. Pylori Research Publications

Document Type	Documents	Percentage (%)
Article	19710	76.74
Review	2743	10.68
Letter	1199	4.67
Note	474	1.85
Conference Paper	413	1.61
Editorial	388	1.51
Erratum	271	1.06
Book Chapter	235	0.91
Short Survey	234	0.91
Data Paper	6	0.02
Book	5	0.02
Retracted	2	0.01
Undefined	5	0.02
Total	**25685**	**100**

During the twenty-year study period on H. Pylori, research publications are identified from table 2. From table 2 maximum of 19710 (76.74%) research publications are contributed by the article, followed by 2743 (10.68%) research publications are reviewed, 1199 (4.67%) research publications are a letter, etc.

This study confirmed that more than 87% of publications are contributed by articles and reviews. This study identified that Less than 2% of contributions are conference papers, book chapters, short surveys, and books.

Table 3: Top 10 Authors' Contribution

Author Name	Affiliation	h-index	Docs	%	Rank
Graham, David Y	Baylor College of Medicine, USA	12	282	14.45	1
Yamaoka, Yoshio	Oita University Faculty of Medicine, Japan	64	280	14.35	2
Perez-Gisbert, Javier	Universidad Autónoma de Madrid, Spain	84	240	12.30	3
Malfertheiner, Peter	Otto von Guericke University of Magdeburg, Germany	86	218	11.17	4
Peek, Richard M.J.	Vanderbilt University Medical Center, USA	72	190	9.74	5
Mégraud, Françis	Centre HospitalierUniversitaire De Bordeaux, France	80	172	8.82	6
Kim, Nayeong	Kyungpook National University School of Medicine, South Korea	2	163	8.35	7
Kountouras, Jannis	Aristotle University of Thessaloniki, Greece	42	142	7.28	8
Suzuki, Hayato	Osaka University, Japan	2	137	7.02	9
Vaira, Dino	Alma Mater StudiorumUniversità di Bologna, Italy	51	127	6.51	10
			1951	**100**	

Table 3 shows the top 10 authors' contributions in the field of Helicobacter Pylori research publications for the selected twenty years study period. It is identified that the top-ranking author is Graham, David Y with 282 (14.45%) research publications, followed by 2nd rank author Yamaoka, Yoshio with 280 (14.35%) publications, the third-ranking author is Perez-Gisbert, Javier with 240 (12.30%) publications. Out of the Top 10 authors, every two authors from USA and Japan, remaining authors are from different countries.

Table 4: Affiliation-wise H. Pylori Research Publications

Affiliation / Institution	Country	Documents	Percentage (%)
Baylor College of Medicine	United States	491	16.79
VA Medical Center	United States	490	16.76
Otto von Guericke University of Magdeburg	Germany	272	9.3
Tehran University of Medical Sciences	Iran	265	9.06
Michael E. DeBakey VA Medical Center	United States	258	8.82
Oita University Faculty of Medicine	Japan	250	8.55
Hospital Universitario de la Princesa	Spain	248	8.48
INSERM	France	219	7.49
Alma Mater StudiorumUniversità di Bologna	Italy	217	7.42
Vanderbilt University School of Medicine	United States	214	7.32
		2924	**100**

Table 4 shows the top 10 institutions' wise contributions in the field of H. Pylori research publications during the twenty-year study period. From the study, it is identified that a maximum of 491 (16.79%) research publications are contributed by Baylor College of Medicine, the United States, followed by VA Medical Centre, London, the United States with 490 (16.76%) publications, Otto von Guericke University of Magdeburg, Germany with 272 (9.3%) publications.

Italy	1698	9.19
Germany	1466	7.93
Iran	1263	6.83
South Korea	1262	6.83
United Kingdom	1010	5.46
Turkey	940	5.09
France	812	4.39
	18483	**100.00**

Table 5: Country-wise Distributions

Country	Documents	(%)
United States of America	3703	20.03
Japan	3177	17.19
China	3152	17.05

From Table 5, it is identified that a maximum number of 3703 (20.03%) research publications are contributed by the United States of America, followed by Japan with 3177 (17.19%) publications, China with 3152 (17.05%) publications. More than 50% of research publications are contributed to the field of Helicobacter Pylori by the top 3 countries and the remaining countries are lesser than ten percentage of contribution.

Table 6: Top 10 Journals Contributions in Helicobacter Pylori

Source Title	Cite Score 2019	SJR 2019	SNIP 2019	Cite Score Tracker 2020	Documents	%
Helicobacter	6.7	1.123	1.207	7.2	1356	28.66
World Journal of Gastroenterology	7.1	1.256	1.391	6.8	695	14.69
Alimentary Pharmacology and Therapeutics	13.8	3.298	1.994	14.1	497	10.51
World Chinese Journal of Digestology	0.1	0.106	0.026	0.1	364	7.69

Plos One	5.2	1.023	1.205	5.3	337	7.12
Digestive Diseases and Sciences	5.1	1.077	0.936	-	325	6.87
Infection and Immunity	5.2	1.581	0.908	5.7	313	6.62
Journal of Gastroenterology and Hepatology	5.9	1.127	1.09	6.1	306	6.47
Nippon Rinsho Japanese Journal of Clinical Medicine	0.2	0.112	-	-	288	6.09
American Journal of Gastroenterology	10.2	2.571	2.593	10.2	250	5.28
					4731	

The top ten most productive journals are identified in table 6. During the study period maximum of contribution in the journal Helicobacter is 1356 (28.66%) publications, followed by World Journal of Gastroenterology with 695 (14.69%) publications and Alimentary Pharmacology and Therapeutics with 497 (10.51) publications and remaining journals are less than seven percentage of contribution in this research.

Table 7: Top ten Language-Wise Distributions

Language	Documents	Percentage (%)
English	21792	85.67
Chinese	1205	4.74
Japanese	589	2.32
Spanish	541	2.13
Russian	351	1.38
German	280	1.10
French	258	1.01
Polish	192	0.75
Korean	142	0.56
Portuguese	88	0.35
	25438	**100**

Table 7 shows the language-wise contributions of H. Pylori research publications during the selected twenty-year study period. From the study, it is identified that a maximum number of 21792 (85.67%) research publications are contributed by the English language, followed by the Chinese language with 1205 (4.74%) research publications and Japanese language with 589 (2.32%) research publications, etc.

Major Findings and Conclusion

There are 25,685 research publications identified in the field of Helicobacter Pylori during the twenty years study period. And the study shows that an average of 1284 (5%) publications throughout the study period, even though the maximum of 1536 (5.98%) publications were contributed in the year 2002.

This study identified that a maximum of 19710 (76.74%) research publications are contributed by article and the top-ranking author is Graham, David Y (USA) with 282 (14.45%) research publications.

During the study period maximum of 1356 (28.66%) publications in the journal of Helicobacter and the top contribution by the institution, Baylor College of Medicine, USA, is 491 (16.79%) publications.

Besides, the study finds a maximum number of 3703 (20.03%) research publications are contributed by the United States of America and a Maximum number of 21792 (85.67%) research publications are contributed in the English language.

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