Black Sea Journal of Health Science
doi: 10.19127/bshealthscience.1101107

Open Access Journal
e-ISSN: 2619 – 9041

Research Article
Volume 5 - Issue 3: 379-386 / September 2022

INVESTIGATION OF GLOBAL TRENDS IN PUBLICATIONS ON SYPHILIS WITH BIBLIOMETRICS

Emine Kübra DİNDAR DEMİRAY[1]*, Sevil ALKAN[2], Cihan YÜKSEL[2]

[1]*Bitlis State Hospital, Department of Infection Disease and Clinical Microbiology, 13000, Bitlis, Türkiye*
[2]*Çanakkale Onsekiz Mart University, Faculty of Medicine, Deparment of Infectious Disease, 17100, Çanakkale, Türkiye*

Abstract: Syphilis is a primarily sexually transmitted disease that has gained importance again due to the increasing number of cases worldwide. This study aimed to investigate at how scientific output on Syphilis has changed since 1970 globally. This bibliometric study was performed in the Clarivate Analytics' Web of Science (Wos) database by searching the 'Treponema pallidum' or 'Treponema pallidum subsp. pallidum' or 'Syphilis' keywords. The research only included documents categorized as 'journal article' in the Wos database; reviews, letters, and editorials were excluded. Analysis was performed on articles published between 1970-2021. We compared the total global output relating to syphilis. We then looked at the contributions of countries, organizations, authors to the global output. Based on the search method utilized in this study, the findings revealed that 6747 articles on syphilis were indexed in the Wos database between 1970 and 2021. This articles were 96790 times cited (14.35 times average per item), the H-Index was 101. 57.329% of them were published after 2000s. Since 2015, the number of articles has never dropped below 200. The top cited articles were published in recent 20 years. The USA (35.230%) published most of the articles on syphilis. The People's Republic of China, England, the United Socialist Soviet Republic, Brazil, France, Australia, Canada, and Germany were also 10 ranked countries. The articles were from 181 countries globally. Publications and organizations providing financial support were from developed countries. However, researchers in developing countries should be supported to reduce the spread and mortality/morbidity of syphilis.

Keywords: Syphilis, Publications, Bibliometrics

***Corresponding author:** Bitlis State Hospital, Department of Infection Disease and Clinical Microbiology, 13000, Bitlis, Türkiye
E mail: e.kubradindar@hotmail.com (E.K. DİNDAR DEMİRAY)
Emine Kübra DİNDAR DEMİRAY https://orcid.org/0000-0001-6459-7182
Sevil ALKAN https://orcid.org/0000-0003-1944-2477
Cihan YÜKSEL https://orcid.org/0000-0002-6861-9163

Received: April 10, 2022
Accepted: April 25, 2022
Published: September 01, 2022

Cite as: Dindar Demiray EK, Alkan S, Yüksel C. 2022. Investigation of global trends in publications on syphilis with bibliometrics. BSJ Health Sci, 5(3): 379-386.

1. Introduction

Syphilis, an important public health problem caused by *Treponema pallidum subspecies pallidum*, is known as a great mimicer. It is an infectious disease that can progress with complications if not treated appropriately. It is transmitted sexually, by laboratory accident, contact with active cutaneous lesions, blood transfusion, or transplacental (Oğrum et al., 2019; URL 1).

Although it has been known since ancient times, it is a disease whose epidemiological data is followed globally, which is still up-to-date. According to the data of the American Center for Disease Prevention (CDC), 129,813 cases of syphilis in all stages were reported in 2019. Since reaching a historic low in 2000 and 2001, the rate of syphilis has increased almost every year. The number of cases is increasing, especially in the heterosexual group, with an increase of 30.0% in the 2018-2019 period and 178.6% in the 2015-2019 period (Newman et al., 2015; URL 1). Venereal syphilis, in particular, continues to be a global public health problem. Every year, around 5.6 million people become infected for the first time (Mattei et al., 2012). The prevalence of primary and secondary syphilis has risen in the last decade, necessitating a greater focus on the disease's detection and treatment. Men who have intercourse with other men are most vulnerable; nevertheless, rises in infection rates have been observed in women of all ages and races. Furthermore, new findings reveal that the prevalence of syphilis is rising in many countries, particularly among people infected with the human immunodeficiency virus (HIV) (Oğrum et al., 2019; Köksal et al., 2020; Alkan et al., 2022). High-risk individuals must be carefully screened by doctors. The surge in congenital syphilis necessitates special attention and highlights the importance of continuing early prenatal care and syphilis screening for all pregnant women (Köksal et al., 2020).

This study aimed to investigate at how scientific output on Syphilis has changed since 1970 globally.

2. Materials and Methods

The information was obtained from the Clarivate Analytics' Web of Science (Wos) database, which offers a highly comprehensive and detailed search engine. We also searched the Wos database based on the article title. These phrases were then utilized to conduct a thorough search using the MeSH tree. Only documents that have

these MeSH phrases identified as important subjects will be considered (URL 2). The research only included documents categorized as 'journal article' in the Wos database; reviews, letters, and editorials were excluded. Analysis was performed on articles published since 1970 period. We first compared the total global output relating to syphilis. We then looked at the contributions of countries, organisations, authors to the global output. Two independent reviewers conducted the screening.
We used the following search strategy:

i. Title: *Treponema pallidum* or *Treponema pallidum subsp. pallidum* or Syphilis

ii. Document Types: Article

iii. Timespan: 1970–2021.

iv. Indexes: Web of Science Core Collection Editions: All

On April 1, 2022, all electronic searches were completed, and the year 2022 was excluded from the study because complete data for that year was unavailable. The citation analysis and co-authorship analysis were done by using the free web app Dimension AI. (https://www.dimensions.ai/).

3. Results

Based on the search method utilized in this study, the findings revealed that 6747 articles on syphilis were indexed in the Wos database between 1970 and 2021. This articles were 96790 times cited (14.35 times average per item) the H-Index was 101. 57.329% of them were published after 2000s. Since 2015, the number of articles has never dropped below 200. The top cited articles were published in recent 20 years (Figure 1). 2,364 (35.038%) of them published as open access. English (82.303%) was the most preferred writing language. 87.995% of the articles were published in Science Citation Index Expanded (SCI-EXPANDED) journals. The most of the articles were from Infectious Diseases (37.720%) field (Table 1). The Centers for Disease Control and Prevention (USA) was the most productive affiliation on syphilis (Table 2).
The vast majority of the articles (6.551%) on syphilis were published in the journal Sexually Transmitted Diseases (Table 3). The vast majority (12.835%) of the articles on syphilis was funded by the United States Department of Health Human Services (Table 4). The USA (35.230%) published most of the articles on syphilis. The People's Republic of China, England, the United Socialist Soviet Republic, Brazil, France, Australia, Canada, Germany were also 10 ranked countries. The articles were from 181 countries globally (Table 5). The list of top cited articles were given in Table 6. The citation analysis and co- authorship analysis were given in Figure 2 and Figure 3.

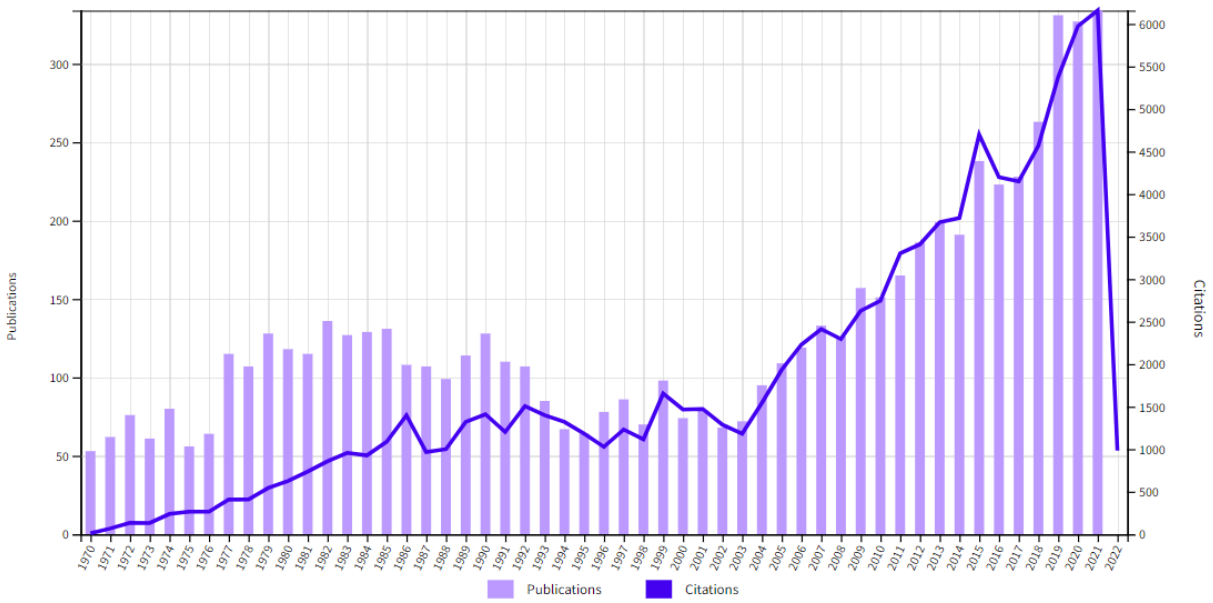

Figure 1. The number of published articles and citations on syphilis.

Table 1. The articles according to Web of Science (Wos) categories*

Wos Categories	Record Count	% of 6.747
Infectious Diseases	2545	37.720
Dermatology	1145	16.971
Immunology	975	14.451
Public Environmental Occupational Health	862	12.776
Medicine General Internal	839	12.435
Microbiology	648	9.604
Obstetrics Gynecology	230	3.409
Pediatrics	194	2.875
Multidisciplinary Sciences	163	2.416
Tropical Medicine	162	2.401

*Showing 10 out of 147 entries; 2 record(s) (0.030%) do not contain data in the field being analyzed.

Table 2. The top ranked affiliations on syphilis*

Affiliations	Record Count	% of 6.747
Centers For Disease Control Prevention USA	403	5.973
University of California System	277	4.106
University of Texas System	219	3.246
University of Washington	187	2.772
University of Washıngton Seattle	186	2.757
University of London	185	2.742
University of California Los Angeles	158	2.342
University of North Carolina	143	2.119
University of North Carolina Chapel Hill	136	2.016
State University of New York Suny System	118	1.749

*Showing 10 out of 5.210 entries; 288 record(s) (4.269%) do not contain data in the field being analyzed.

Table 3. Top ranked journal list*

Publication Titles	Record Count	% of 6.747
Sexually Transmitted Diseases	442	6.551
Vestnik Dermatologii I Venerologii	423	6.269
Internatıonal Journal of STD AIDS	255	3.779
British Journal of Venereal Dıseases	200	2.964
Infectıon and Immunity	190	2.816
Sexually Transmıtted Infections	188	2.786
Journal of Clinical Microbiology	125	1.853
Plos One	108	1.601
Genitourinary Medicine	91	1.349
Clinical Infectious Diseases	87	1.289
BMC Infectious Diseases	84	1.245
Journal of Infectious Diseases	59	0.874
Journal of Bacteriology	43	0.637
Hautarzt	41	0.608
Acta Dermato Venereologica	40	0.593
Annales de Dermatologie et de Venereologie	38	0.563
Journal of ımmunology	37	0.548
Plos Neglected Tropical Diseases	35	0.519
BMC Public Health	33	0.489
American Journal of Public Health	31	0.459
Archives of Dermatology	31	0.459
Sexual Health	30	0.445
Cutis	29	0.430
South African Medical Journal	29	0.430
Diagnostic Microbiology and Infectious Disease	27	0.400

*Showing 25 out of 1.449 entries.

Table 4. Top ranked funding agencies*

Funding Agencies	Record Count	% of 6.747
United States Department of Health Human Services	866	12.835
National Institutes of Health	752	11.146
National Institute of Allergy Infectious Diseases	565	8.374
National Natural Science Foundation of China	145	2.149
Fogarty International Center	107	1.586
Centers For Disease Control Prevention USA	90	1.334
European Commission	76	1.126
National Institute of Mental Health	72	1.067
United States Public Health Service	54	0.800
Eunice Kennedy Shriver NICHHD	49	0.726

*Showing 10 out of 1.670 entries; 4.929 record(s) (73.055%) do not contain data in the field being analyzed. NICHHD= national institute of child health human development

Table 5. The top ranked countries on syphilis*

Countries/Regions	Record Count	% of 6.747
USA	2377	35.230
PRC	514	7.618
England	490	7.262
USSR	366	5.425
Brazil	313	4.639
France	253	3.750
Australia	221	3.276
Canada	211	3.127
Germany	183	2.712
Switzerland	146	2.164
Italy	145	2.149
Spain	144	2.134
India	139	2.060
Netherlands	130	1.927
South Africa	128	1.897
Japan	124	1.838
Germany	81	1.201
Türkiye	78	1.156
Belgium	74	1.097
Denmark	74	1.097
South Korea	62	0.919
The Czech Republic	61	0.904
Poland	61	0.904
Austria	59	0.874
Peru	58	0.860

*Showing 25 out of 181 entries; 279 record(s) (4.135%) do not contain data in the field being analyzed. PRC= The People's Republic of China, USSR= The United Socialist Soviet Republic

Table 6. The top 10 cited articles on syphilis

Info	Article name	Journal	APY	Total
Fraser et al.,1998	Complete genome sequence of Treponema pallidum, the syphilis spirochete	Science	30.96	774
Thomas et al.,1991	The Tuskegee-Syphilis-Study, 1932 To 1972- Implıcatıons For HIV Educatıon And AIDS Risk Educatıon-Programs In The Black-Community	American Journal of Public Health	13.44	430
Rowley et al., 2019	Chlamydia, gonorrhoea, trichomoniasis and syphilis: global prevalence and incidence estimates	Bulletin of The World Health Organization	106.25	425
Freimuth et al., 2001	African Americans' views on research and the Tuskegee Syphilis Study	Social Science and Medicine	18.18	400
Lukehart et al.,1988	Invasıon of the central nervous-system by Treponema-pallidum - implications for dıagnosis and treatment	Annals of Internal Medicine	11.29	395
Tobian et al., 2009	Male circumcision for the prevention of HSV-2 and HPV infections and syphilis	The New England Journal of Medicine	23.79	333
Rolfs et al.,1997	A randomized trial of enhanced therapy for early syphilis in patients with and without human immunodeficiency virus infection	The New England Journal of Medicine	12.81	333
Berry et al.,1987	Neurologıc relapse after benzathine penicillin therapy for secondary syphilis ın a patıent wıth hiv-infectıon	The New England Journal of Medicine	8.08	291
Buchacz et al., 2004	Syphilis increases HIV viral load and decreases CD4 cell counts in HIV-infected patients with new syphilis infections	National HIV Prevention Conference	15.16	288
Marra et al., 2004	Cerebrospinal fluid abnormalities in patients with syphilis: Association with clinical and laboratory features	the Journal of Infectious Diseases	14.68	279

APT= average per year

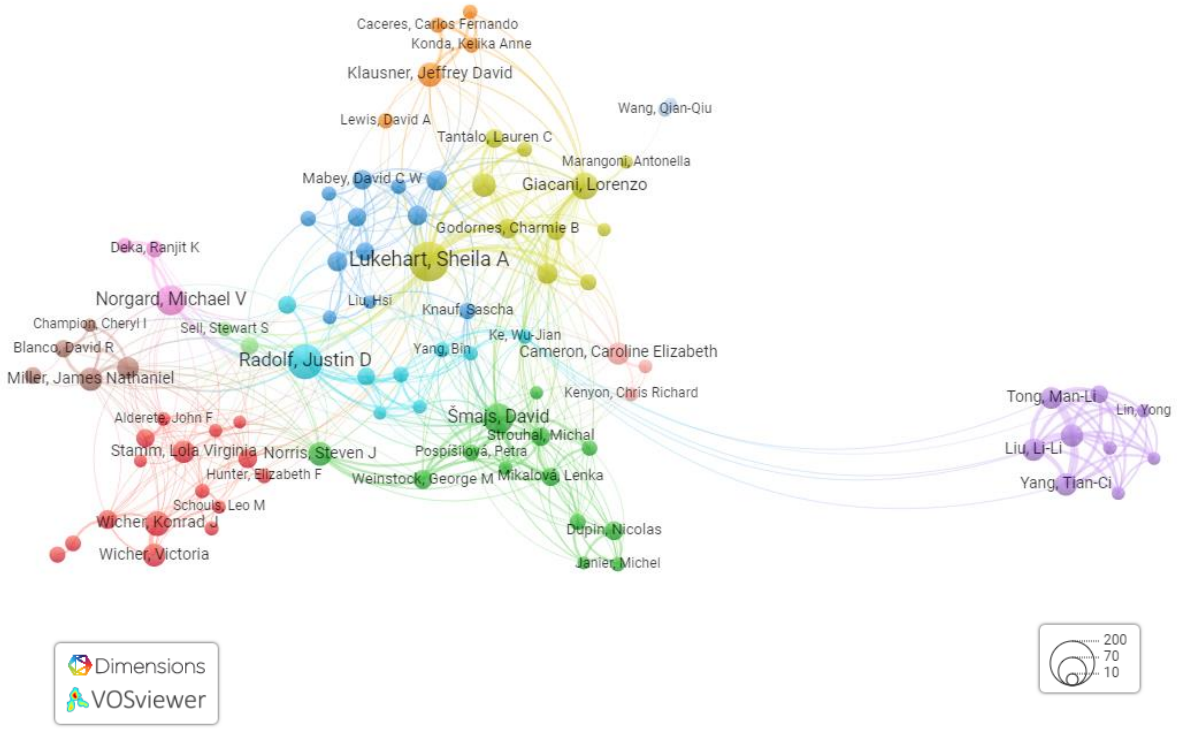

Figure 2. The citation analysis.

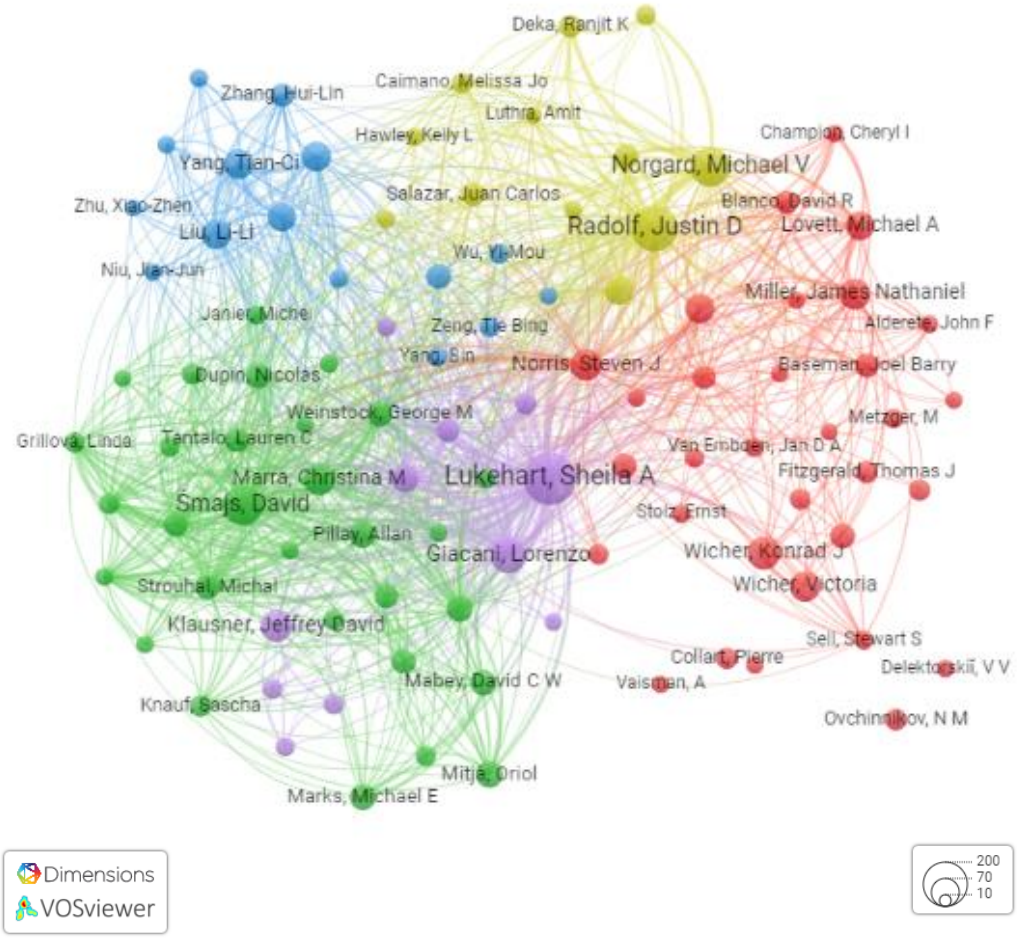

Figure 3. The co- authorship analysis.

4. Discussion

This study aimed to provide a bibliometric summary of the literature on "syphilis" between the years 1970 and 2021. A common and thorough approach for examining and interpreting vast amounts of scientific data is named bibliometric analysis. It allows us to examine the evolutionary subtleties of a particular discipline while also offering light on developing topics in a field. Scholars utilize bibliometric analysis for a number of purposes, including identifying developing trends in article and journal performance, cooperation patterns, and research elements, as well as investigating the intellectual structure of a certain topic in the existing literature. The number of bibliometric analysis studies in medicine has been rising in recent years. Although there are bibliometric analyzes published in many different disciplines (Kahraman and Yıldırım, 2020; Alkan-Çeviker et al., 2021; Alkan Çeviker et al., 2021; Çeviker et al., 2021; Dindar Demiray et al., 2021; Gürler et al., 2021; Köylüoğlu et al., 2021; Özlü, A. 2021; Özlü, 2021; Zengin and Baldemir, 2021; Akyüz et al., 2022; Durgun et al., 2022; Özlü, 2022), no similar studies have been found on syphilis.

Eugene Garfield created the Science Citation Index in 1955, bringing in the current era of bibliometrics (Garfield, 1955). There are two types of bibliometric analysis techniques: (1) performance analysis and (2) scientific mapping. In essence, performance analysis accounts for research constituent contributions, whereas science mapping focuses on the links between research constituents (Donthu et al., 2021). In this study, mapping, network visualization and content analysis were not done. Each article's bibliometric parameters were examined: publication title, citation count, citation density (the average number of citations per year), publication year, authorship, country and institution of origin, and topic of interest.

Although syphilis concerns different fields of medicine (such as dermatology, newborns, ophthalmology, and public health), it is primarily followed by infectious diseases specialists.

Especially syphilis cases apply the dermatology outpatients' clinics (Karaosmanoğlu et al., 2019). This is in line with our study, in which it was determined that the highest number of publications were published in the field of infectious diseases. In this case, it may be due to the coexistence of other STDs in these patients or to the fact that this branch is more effective in complex patient management.

According to our results, the majority of the articles were published from the USA. The People's Republic of China, England, the United Socialist Soviet Republic, Brazil, France, Australia, Canada, and Germany were also among the top ten listed nations. The articles came from 181 different nations throughout the world. This significant contribution from the USA might be attributed to the presence of a big population of active researchers as well as a diversity of funding agencies.

Since this infection was nearly totally eliminated in the nation 50 years ago, China has seen a dramatic upsurge in the incidence and prevalence of syphilis, particularly in recent years (Tucker and Cohen, 2011). The results of our study may reflect the remarkable increase in the incidence of this disease. China was the second leading country in our study. According to World Health Organization (WHO, 2019) data, in 2019, 1% or more of prenatal care attendance tested positive for syphilis in 38 of the 78 reporting countries. An average of 3.2 percent (range: 1.1 percent to 10.9 percent) of prenatal care attendance tested positive for syphilis in these 78 reporting countries. Pregnancy-related syphilis is the second greatest cause of stillbirth worldwide, and it also causes preterm, low birthweight, neonatal mortality, and infections in neonates (URL 3). In our study, we found that the articles were from 181 countries globally and this reflects the global impact of this topic.

In 2019, 11 of the 25 reporting nations stated that 5% or more of MSM were diagnosed with active syphilis, while 7 countries reported that 10% or more of MSM were diagnosed with active syphilis. In 2019, an average of 11.8 percent (range: 5.2 percent to 19.6 percent) of MSM in these 25 reporting nations are infected with syphilis. There have been indications of rising tendencies in various nations (URL 3). According to a previous report from France, overall, 96 % of syphilis cases were in men with an average age of 36.5 years, and 70% were born in France. The proportion of syphilis patients with HIV co-infection fell with time, from 60% in 2000 to 33% in 2003. The Ile-de-France region, particularly the city of Paris, has been the most hit by the syphilis epidemic (Couturier et al., 2004). In 2019, syphilis infected more than 5% of sex workers in 11 of the 32 reporting nations, and more than 10% in four. An average of 10.8 percent (range 5.8 percent to 30.3 percent) of sex workers tested in these 32 reporting countries in 2019 were diagnosed with active syphilis. Sex workers are female, male, and transgender adults and youth who accept money or items in return for sexual services on a regular or sporadic basis. Many sex workers are especially vulnerable to HIV and other sexually transmitted illnesses (such as syphilis) due to a combination of variables, including a large number of sex partners, risky working circumstances, and the inability to negotiate continuous condom usage (URL 3). In our study, it was determined that especially the most cited articles were from the hot topics such as MSM, HIV and neonatal syphilis. In addition, the complexity of the disease in these cases and the difficulty of its management may have been effective in the increase in the number of publications over the years.

Untreated syphilis can cause major consequences in 25% of infected people who do not obtain diagnosis and treatment. Complications can be severe, even fatal, and increase the risk of HIV acquisition and transmission (Alkan et al., 2021; URL 3).

5. Conclusion

This report gives historical insights on syphilis research patterns. Over the previous 20 years, the number of published articles has grown dramatically, as has the general trend of publications. The findings of our study might be valuable to syphilis researchers, funding agencies, and health management.

Limitations

This is the first bibliometric analysis of syphilis research trends from the WOS database in recent years. Furthermore, there are several limitations to this bibliometric analysis. The electronic database is confined to the WOS database, and other electronic databases, such as, PubMed, Scopus, etc., were not searched and evaluated. Non-English papers were also disqualified. In this study, the majority of included papers are written in English; nonetheless, this limitation may result in a publishing bias. The last constraint is that influential articles were not mentioned with a high citation frequency since some potentially significant papers were released lately and may not be cited often. In addition, mapping, network visualization and content analysis were not done. Only citation analysis and co- authorship analysis were done.

Author Contributions

Concept: E.K.D.D. (34%), S.A. (33%) and C.Y (33%), Design: E.K.D.D. (34%), S.A. (33%) and C.Y (33%), Supervision: E.K.D.D. (34%), S.A. (33%) and C.Y (33%), Data collection and/or processing: E.K.D.D. (34%), S.A. (33%) and C.Y (33%), Data analysis and/or interpretation: E.K.D.D. (34%), S.A. (33%) and C.Y (33%), Literature search: E.K.D.D. (34%), S.A. (33%) and C.Y (33%), Writing: E.K.D.D. (34%), S.A. (33%) and C.Y (33%), Critical review: E.K.D.D. (34%), S.A. (33%) and C.Y (33%), Submission and revision E.K.D.D. (34%), S.A. (33%) and C.Y (33%). All authors reviewed and approved final version of the manuscript.

Conflict of Interest

The authors declared that there is no conflict of interest.

Ethical Approval/Informed Consent

The study complied with the Helsinki Declaration, which was revised in 2013. Ethics committee approval was not required for this study because of there is no animal or human research.

References

Alkan S, Akça A, Önder T, Güçlü Kayta SB, Vurucu S, Yüksel C, Şener A. 2022. Eski ama eskimeyen hastalik sifiliz: Olgu serisi. YOBÜ Sağlık Bilim Fak Derg, 3 (1): 53-58.

Alkan-Çeviker S, Öntürk H, Alıravcı ID, Sıddıkoğlu D. 2021. Trends of COVID 19 vaccines: International collaboration and visualized analysis. Infect Dis Clin Microbiol, 3: 129-136. doi: 10.36519/idcm.2021.70.

Alkan-Çeviker S, Uyar C, Yılmaz M, Bulut Ayaz C, Tahmaz A. 2021. Tetanus: A bibliographic analysis of theses from Turkey. D J Med Sci, 7(3):262-267.

Akyüz HÖ, Alkan S, Gökçe ON. 2022. Overview on pressure ulcers studies based on bibliometric methods. Iberoam J Med, 4(1):18-23. doi: 10.53986/ibjm.2022.0004.

Couturier E, Michel A, Janier M, Dupin N, Semaille C. 2004. The syphilis surveillance network. Syphilis surveillance in France, 2000-2003. Euro Surveill, 9(12): 493.

Çeviker AS, Yılmaz M, Uyar C, Dindar Demiray EK. 2021. Bibliometric analysis of scientific research on Crimean-Congo hemorrhagic fever in Turkey. DJ Med Sci, 7(2): 97-102.

Dindar Demiray EK, Durğun M, Alkan S. 2021. Examination of thesis on Aspergillosis: A Turkish sample. DJ Med Sci, 7(2): 103-106.

Donthu N, Kumar S, Mukherjee D, Pandey N, Lim WM. 2021. How to conduct a bibliometric analysis: An overview and guidelines. J Business Res, 133, 285-296.

Durgun C, Alkan S, Durgun M & Dindar Demiray, EK. 2022. Türkiye'den Kist Hidatik Konusunda Yapılmış Yayınların Analizi. BSJ Health Sci, 5 (1): 45-49. doi: 10.19127/bshealthscience.937804

Garfield E. 1955. Citation indexes for science; a new dimension in documentation through association of ideas. Sci, 122(3159): 108-111.

Gürler M, Alkan S, Özlü C, Aydın B. 2021. Collaborative Network analysis and bibliometric analysis of publications on diabetic foot infection. J Biotech Strat Health Res, 5(3): 194-199.

Kahraman E, Yıldırım E. 2020. A Bibliometrıc study: Hypertension durıng pregnancy. Kırıkkale Üniv Tıp Fak Derg, 22 (3): 329-340 . doi: 10.24938/kutfd.762913.

Karaosmanoğlu N, İmren Baskovski IG, Karaaslan E, Kıratlı E, Ekşioğlu HM. 2019. Dermatoloji kliniğine son iki yılda başvuran sifiliz olgularının değerlendirilmesi. Ankara Eğitim Araş Hast Tıp Derg, 52(1): 69-73.

Köksal MO, Beka H, Evlice O, Çiftçi S, Keskin F, Başaran S, et al. 2020. Syphilis seroprevalence among HIV-infected males in Istanbul, Turkey. Rev Argent Microbiol. 52(4): 266-271.

Köylüoğlu AN, Aydın B, Özlü C. 2021. Bibliometric evaluation based on scopus database: Global analysis of publications on diabetic retinopathy and comparison with publications from Turkey. D J Med Sci, 7(3): 268-275.

Küçük U, Alkan S, Uyar C. 2021. Bibliometric analysis of infective endocarditis. Iberoam J Med, 3(4): 350-355. doi: 10.53986/ibjm.2021.0055.

Newman L, Rowley J, Vander Hoorn S, Wijesooriya NS, Unemo M, Low N, et al. 2015. Global estimates of the prevalence and incidence of four curable sexually transmitted infections in 2012 based on systematic review and global reporting. PLoS One, 10(12): e0143304.

Mattei PL, Beachkofsky TM, Gilson RT, Wisco OJ. 2012. Syphilis: a reemerging infection. Am Fam Physician, 86(5): 433-440.

Oğrum A, Karataş A, İzol B, Güngör E, Ekşioğlu HM. 2019. The demographic findings of patients diagnosed with syphilis in a training and research hospital. Van Med J, 26(3): 279-284.

Özlü A. 2021. Miyofisal ağri sendromu konulu yayınlarin analizi. Inter Anatolia Acad Online J Health Sci, 7 (3): 65-78.

Özlü A. 2022. Bibliometric analysis of publications on pulmonary rehabilitation. BSJ Health Sci, 5(2): 219-225. doi: 10.19127/bshealthscience.1032380.

Özlü C. 2021. Scopus veri tabanına dayalı bibliyometrik değerlendirme: miyelodisplastik sendrom konulu yayınların global analizi ve türkiye kaynaklı yayınların değerlendirilmesi. Biotech Strat Health Res, 5(2): 125-131.

Öztürk G. 2022. Toraks cerrahisi konusundaki yayanların global analizi ve Türkiye'nin katkısı. TOGÜ Sağlık Bilim Derg, 2(1):

39-50.

URL 1. https://www.cdc.gov/std/statistics/2019/overview.htm#Syphilis (access date: March 15, 2022).

URL 2. https://www.ncbi.nlm.nih.gov/books/NBK3827/#pubmedhelp .Search_Field_Descriptions. (access date: April 11, 2022).

URL 3. https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/data-on-syphilis (access date: April 04, 2022).

Tucker JD, Cohen MS. 2011. China's syphilis epidemic: epidemiology, proximate determinants of spread, and control responses. Current Opin Infect Diseas, 24(1): 50–55. https://doi.org/10.1097/QCO.0b013e32834204bf

Yıldız E. 2022. Türkiye'de gebelik ve anestezi konulu yayınların bibliyometrik analizi. BSJ Health Sci, 5(1): 50-55.

Yılmaz M, Alkan Çeviker S, Dindar Demiray, E, Uyar C. 2021. Türkiye'de cinsel yolla bulaşan hastalıklar ile ilgili yapılan lisansüstü tez çalışmalarının bibliyografik incelenmesi. Aksaray Üniv Tıp Bil Derg, 2(1): 8-11.

Zengin M, Baldemir R. 2021. Investıgatıon of the global outcomes of acute respiratory distress syndrome wıth the effect of COVID-19 in publications: A bibliometric analysis between 1980 and 2020. Kırıkkale Üniv Tıp Fak Derg, 23(2): 279-292.