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Bibliometric Analysis of Research on "Urology and COVID-19"; Web of Science Example

"Üroloji ve COVID-19" Konulu Araştırmaların Bibliyometrik Analizi; Web of Science Örneği

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ÖZ

Amaç: Çalışma, pandeminin patlak vermesinden bu yana "Üroloji ve COVID-19" alanlarında yayınlanan 1616 çalışmanın bibliyometrik analiz ve trendlerini ortaya koymayı amaçlamaktadır. Böylelikle araştırmacılara bu konulardaki araştırmaların istatistiksel dağılımları hakkında temel bilgiler verilmesi amaçlanmıştır.
Araçlar ve Yöntem: Web of Science Core Collection Veritabanı kullanılarak 2020, 2021, 2022 ve 2023 yıl aralığında "Üroloji ve COVID-19" konulu bibliyometrik analiz yapılmıştır. Sonuçlar aynı dönemin "Üroloji" yayınlarıyla karşılaştırılmıştır. Trendler ayrıca ücretsiz çevrimiçi görsel yazılım (carrot[2]) kullanılarak farklı verilerle değerlendirilmiştir.
Bulgular: Toplam 5481 makale bu çalışmalara 13036 kez atıf yapmıştır. En yaygın belge türü araştırma makalesi, en sık yayınlanan alan Üroloji & Nefroloji, en çok kullanılan dil İngilizce, en çok yayınlanan dergi Journal of Urology, en çok yayın veren ülke Amerika Birleşik Devletleri ve en çok katkı sağlayan kurum Udice Üniversitesi olmuştur.
Sonuç: Dünyanın dengelerini bozan bu bulaşıcı hastalık, yayınların dengesini de kendi lehine değiştirmiştir. Ürologlar, pandemi ile mücadele ederken "Üroloji ve COVID-19" araştırmalarına izole "Üroloji" araştırmalarından daha çok önem vermiştir.

Anahtar Kelimeler: bibliyometri; covıd-19; pandemi; sars-cov-2; üroloji; yeni koronavirus

ABSTRACT

Purpose: The study aims to reveal the bibliometric analysis and trends of 1616 studies published in the fields of "Urology and COVID-19" since the outbreak of the pandemic. Thus, it is aimed to provide researchers with basic information about the statistical distribution of research on these topics. This study aims to reveal the bibliometric analyzes and trends of 1616 studies published in the "Urology and COVID-19" fields since the pandemic broke out. Thus, it was aimed to provide researchers with basic information about the field of research on these subjects, in which countries it was conducted, and in which journals it was mostly published.
Materials and Methods: A bibliometric analysis was conducted on "Urology and COVID-19" for 2020 - 2023 years using the Web of Science Core Collection Database. The results were compared with "Urology" publications of the same period. Trends were also evaluated with different data using free online visualization software (carrot2).
Results: A total of 5481 articles cited these studies 13036 times. The most common document type was research article, the most common field was Urology & Nephrology, the most common language was English, the most common journal was the Journal of Urology, the most common publishing country was the United States, and the most common contributing institution was Udice University.
Conclusion: This infectious disease, which disrupted the balance of the world, also changed the balance of publications in its favor. Urologists gave more importance to "Urology and COVID-19" research than isolated "Urology" research while fighting against the pandemic.

Keywords: bibliometrics; covıd-19; novel coronavirus; pandemics; urology; sars-cov-2

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INTRODUCTION

The coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, previously 2019-nCoV), has had a worldwide impact. Healthcare services in many nations have had to alter their operations due to the COVID-19 surge. Previously ongoing research trials have been suspended due to the sudden shift in resources toward managing this pandemic. Besides, surgical departments have had to prioritize and cancel surgeries, balance the safety of patients and staff, and assume the risk of operating where surgery is essential to life or limb.[1] There is ongoing research in many medical specialties in areas that relate to COVID-19, and urological research is one of these. Studies have examined not only how COVID-19 may affect bodily systems concerning pathophysiology, but also how it may impact routine care in a specialty, from an administrative and clinical practice perspective. Therefore, as in every field, COVID-19 studies in the field of urology are also quite abundant and increasing.

As a term, it is seen that statistical bibliography was used in lessons at Cambridge University by E. Wyndham Hulme in 1922, and then these courses were turned into a book.[2] Hulme counted documents with his work on the growth of modern civilization. The next use of the term statistical bibliography is seen in an article by Raisig in 1962 on citations in health sciences.[3] In order not to confuse the term with statistical bibliographies, the term bibliometry was defined by Pritchard in 1969.[4] Bibliometry according to Pritchard; It is the application of mathematics and statistical methods to books and other communication media.

The purpose of this research; is to reveal the bibliometric analysis and trends of 1616 studies published on "Urology and COVID-19". In this way, it is aimed that readers in the field of "Urology and COVID-19" can easily reach the statistics of the studies against the increasing number of works. It is aimed by the researchers to increase the awareness of the authors and the subjects who form the discipline with the least effort and to contribute to which area and how their studies will be directed.

MATERIALS and METHODS

Web of Science

Web of Science (WOS) is a website that provides subscription-based access to multiple databases that provide comprehensive citation data for many different academic disciplines.

Study Design

Using the WOS database, the subjects of "Urology and COVID-19" was searched and the obtained countries, journals, publication years, publication numbers, publication types, publication languages, and subject trends and organizations that contributed to the research were examined with bibliometric analysis. When "Urology and COVID-19"-related words are scanned in the Web of Science Core Collection database; the titles, the publications about "Urology and COVID-19" are listed by scanning (Supplementary Material 1, 2). With this scan, 1616 studies published in 2020, 2021, 2022, and 2023 when COVID-19 was effective, were accessed and analyzed.

Carrot²

Carrot² is an open-source search engine that can also be used online.[5] The clustering algorithm, offers components by dividing the searches into thematic categories. The results of open-access sources are grouped. In the study, trends were also evaluated with different data using free online visual software (carrot²).

Classification Criteria

While evaluating which country the studies were from, the authors were included in the cluster of the country from which country the study was, so studies with authors from different countries could be included in different clusters. The evaluation made according to the contributing organizations is also in the same way.

RESULTS

Tables and graphics in the findings were obtained from the WOS database.[6]

When the distribution of the studies has been examined over the years, it has been seen that there were 634 publications in 2020, 495 in 2021, 481 in 2022, and 6 in 2023. From Türkiye 43, 35 and 34 publications have taken place in WOS in 2021, 2022, and 2023 respectively. When the publications were divided according to WOS categories, it has been seen that most publications were in the Urology & Nephrology category by far. The first 5 categories have been given in Figure 1.

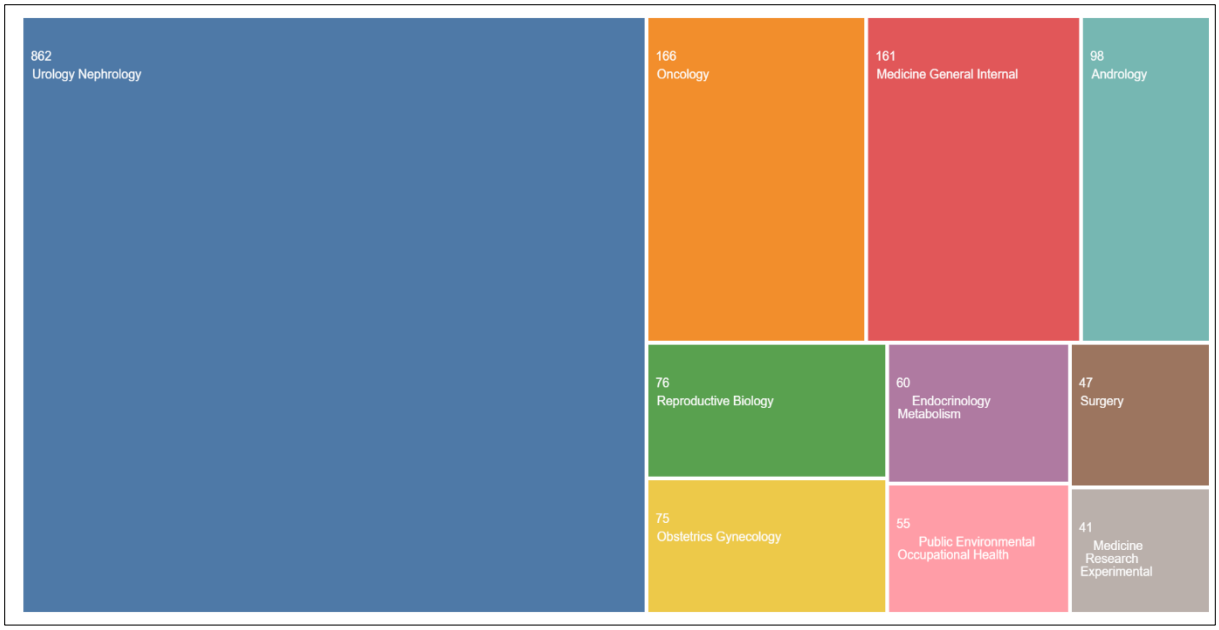

Figure 1. Studies according to WOS categories.

When the studies are evaluated according to the publication types, it is seen that there are many different types of publications and the article type comes first. The distribution of the publications according to the document type is given in Figure 2.

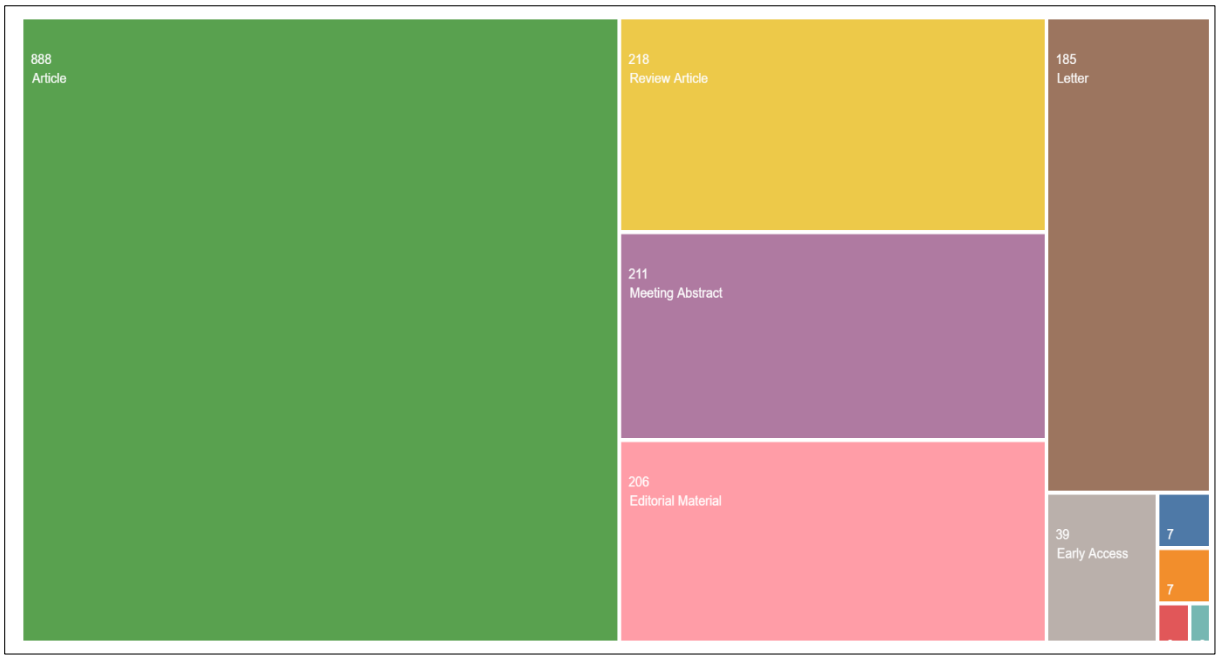

Figure 2. Studies according to document types.

Studies have been published in 7 different languages. Whereas English takes first place, there is only one study published in Turkish. The distribution of the publications by language has been given in Figure 3.

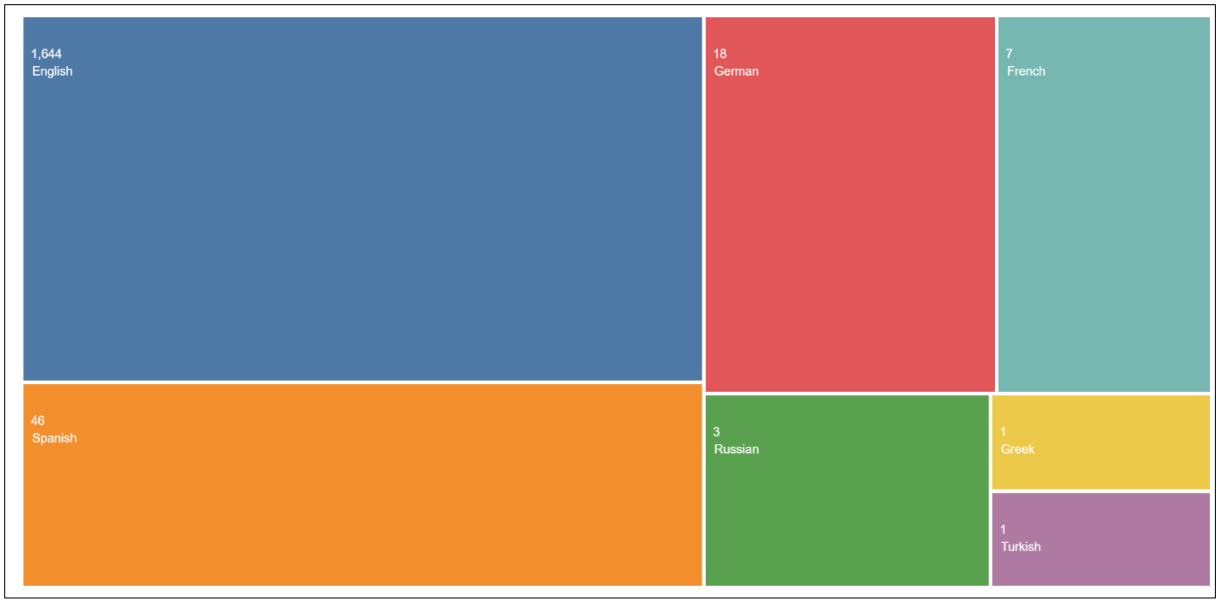

Figure 3. Studies according to languages.

Studies have been published in 459 different journals in total. Journal of Urology ranks first with 100 publications. The first 10 journals in which the studies were published have been given in Figure 4.

Figure 4. Studies according to the journals they were published in.

1616 studies have been cited a total of 13036 times, 2177 times in 2020, 5264 times in 2021, 5486 times in 2022, and 109 times in 2023. A total of 7191 citations were made without self-citation. The studies were cited to 5481 articles in total and 4482 articles were found to be cited when self-citations were removed. The average number of citations of the studies was found to be 8.07. The H index of the publications is 52. The top 5 publications with the most citations have been given in Table 1.

When the studies are classified according to which country they are from, it is seen that most studies came from the United States of America (USA). Türkiye ranks 5th, the first 10 countries where the studies are published are given in Figure 5.

The publications quoted from Türkiye have been ranked according to their citation number, the first 3 publications have been given in Table 1.

Table 1. Top 5 cited studies and 3 most cited studies overall, and from Türkiye, respectively, citations by years.

	PMID	type	journal	WOS category	2020	2021	2022	2023
overall	32387456	Article	Ann Oncol.	Oncology	102	143	74	2
	32283711	Article	Cells.	Cell Biology	108	131	77	0
	32482249	Article	Fertil Steril.	Reproductive Biology	93	114	65	1
	32379329	Letter	JAMA Netw Open	Reproductive Biology	56	109	60	1
	32650948	Article	Fertil Steril.	Urology & Nephrology	28	86	74	1
Türkiye	32507625	Article	Eur Urol.	Urology & Nephrology	15	44	34	1
	32883151	Article	Aging Male	Urology & Nephrology	1	36	24	0
	32781456	Article	Urol Int.	Urology & Nephrology	8	31	18	1

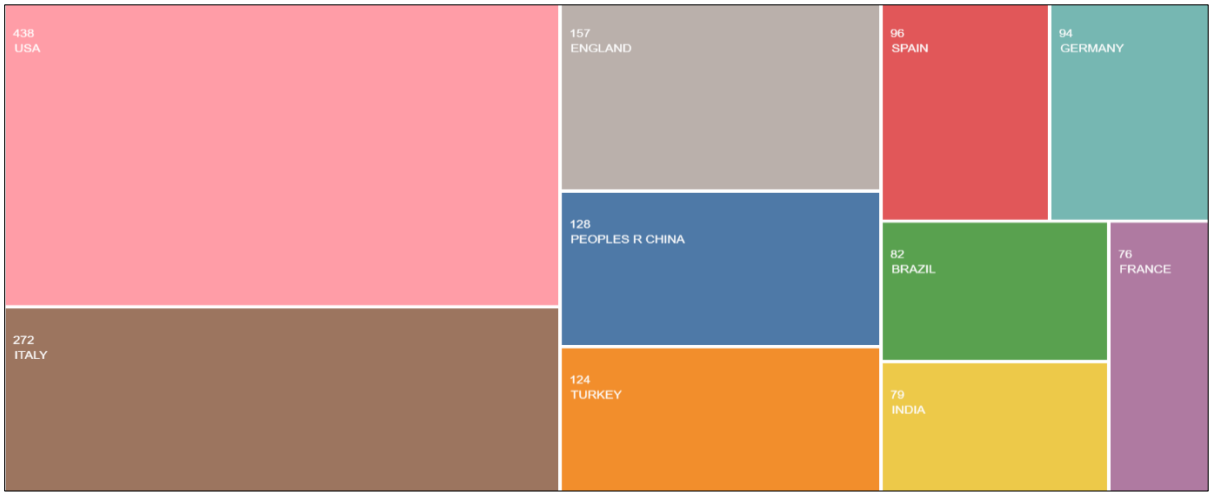

Figure 5. Studies by country of origin.

When the institutions that contributed to the studies were examined, it has been seen that there were 2717 organizations in total. The top 3 organisations are given in Table 3. The first three institutions that contribute from Türkiye can be seen in Table 2.

Table 2. Organizations contributing to studies (top 3), overall, and Türkiye respectively.

	Organizations	studies	percent
over.	Udice University	54	3.342%
	University of London	53	3.280%
	Sapienza University	49	3.032%
TR*	University of Health Sciences	20	0.012%
	Istanbul Medipol University	15	0.009%
	Istanbul University	11	0.006%

TR: Türkiye, over: overall

Studies Türkiye contributed were cited 1141 times in total. 1035 citations have been made without self-citation.

The studies were cited in 767 articles in total, and the number of publications was revised to 715 when self-citations were removed. The average number of citations of the publications is 10.19 The H index of the publications is 17.

In the Carrot² search made with the title of "Urology", the top 100 studies were reached, and according to these data, it was seen that the word "Urology" was most frequently used with the term prostate cancer, and "COVID-19" was used in the second place. The visual according to the aforementioned search was presented in Figure 6.

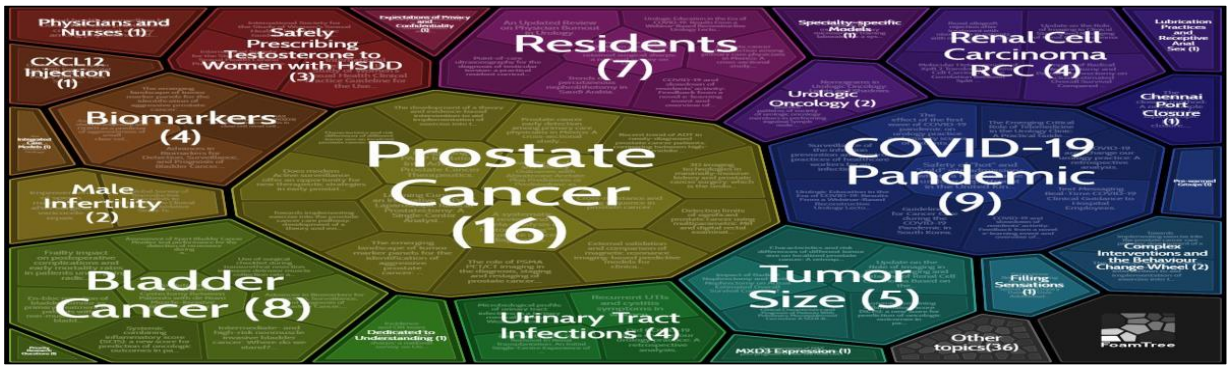

Figure 6. Visual of the Carrot² Analysis with Pubmed for the term "Urology"

DISCUSSION

Bibliometrics is a tool used to achieve quantitative research assessment exercises of academic output, teams, or even individuals in the field of scientific research. It is also important to know the basics of this method such as the impact factor, the h-index, and how journals evaluated. Bibliometric studies provide researchers the opportunity to easily examine all studies on some subjects.

Since Covid 19 erupted, healthcare workers have been having rough times. Because they have been trying to cope with the disease with insufficient information from the beginning, and also trying to collect information to recognize the disease to overcome it. Therefore, they are actively working in the field on the one hand, and on the other hand, they conduct research and publish them. For this reason, publications about COVID-19 are quite high.[7] This abundance affects the field of urology as well.[8] Our study is the only study in the literature that analyzes publications in the fields of "Urology and COVID-19" bibliometrically.

Türkiye has contributed 3.184% to literature in the field of "Urology" in the last four years, it has contributed 6.931% to the publications of "Urology and COVID-19". Türkiye participated in "Urology and COVID-19" publications at a higher rate. This can be attributed to the intense pandemic period that broke out in Türkiye. It is possible to conclude that Turkish researchers are making special efforts to overcome the pandemic. In many publications, it is mentioned that the scientific progress of urologists in their field was interrupted by the outbreak of the COVID-19 pandemic.[9]

In the last four years, publications in the field of "Urology and COVID-19" are similar to those in the field of "Urology" in terms of WOS category, but the andrology category started to appear on the scene earlier.[10] The reason for this may be that the testicular involvement of the COVID-19 disease has attracted attention and concentrated the studies on itself.[11]

Although the document type has spread in a wide range in the field of "Urology" in the last four years, types such as book and book reviews are not observed in "Urology and COVID-19"-oriented studies. We can attribute this to the lack of sufficient and deep-rooted information yet to reveal such widely attended documents.

Although most of the world languages are used in the studies in the field of "Urology", in the last four years, 97.946% of them are in English.[12] Although there are only 7 languages in "Urology and COVID-19" studies, English was limited to 95.297%. Spanish has come forward in this field among studies. This can also be attributed to the researchers' desire to reach out to large audiences and help their colleagues fight the disease by not using minor languages.[13]

Since the beginning of the pandemic, all journals have been more inclined to publish studies on COVID-19.[14] The country's ranking shows a similar ranking in "Urology and COVID-19" publications as in "Urology" publications. While Türkiye was in 12th place in the general ranking, is in 5th place in the ranking of "Urology and COVID-19" publications.

Data showed that Italian institutions constitute half of the top 10 institutions. The dramatic progress of the pandemic in Italy may have contributed to this.[15] As a matter of fact, we only see USA organizations in the first place in studies in the field of "Urology". Unfortunately, Turkish institutions are not as effective as "Urology and COVID-19" publications in the general ranking. Turkish institutions are starting to appear in the list of "Urology and COVID-19" publications in the 3rd tenspot while they are starting to appear in the list of "Urology" publications after the 11th tenspot.

However, our article has some limitations. The main limitations are that there can be publications outside the WOS database and that the publications can be included in more than one cluster at the same time in terms of the country and institution.

Conclusions

The fact that the "Urology" studies were ahead of the "Urology and COVID-19" studies in terms of proportion and order made us think of the following. Urologists, who had to leave their professions in Turkey and all over the world due to the pandemic that started suddenly and spread

rapidly, tried to reveal the unknown aspects of the disease from a urological point of view while fighting the pandemic. By doing so, Turkey has contributed more to the literature than it otherwise would have. This contribution to the disease is obvious, but time will tell how the epidemic is damaging urology

Conflict of Interest

The authors declare that there is not any conflict of interest regarding the publication of this manuscript.

Acknowledgments

We wish a speedy recovery to everyone suffering from this global epidemic. We would like to thank all healthcare professionals who fought the pandemic both in the research and field stages.

Ethics Committee Permission

Since this study is a bibliometric analysis, ethics committee permission is not required.

Authors' Contributions

Concept/Design: İÜ, MD. Data Collection and/or Processing: İÜ, MD. Data analysis and interpretation: İÜ, EE. Literature Search: İÜ, EE. Drafting manuscript: İÜ, MŞB. Critical revision of manuscript: İÜ, MŞB. Supervisor: İÜ, MD, EE, MŞB.

REFERENCES

1. Stensland KD, Morgan TM, Moinzadeh A, et al. Considerations in the Triage of Urologic Surgeries During the COVID-19 Pandemic. Eur Urol. 2020;77(6):663-666.
2. Statistical Bibliography in Relation to the Growth of Modern Civilization: Two Lectures delivered in the University of Cambridge in May 1922. Nature. 1923;112(2816):585-586.
3. Raisig LM. Statistical bibliography in the health sciences. Bull Med Libr Assoc. 1962;50(3):450-461.
4. Pritchard A. Statistical bibliography or bibliometrics. J. Doc. 1969;25:348-349.
5. https://search.carrot2.org/#/search/pubmed/urology/treemap. Erişim tarihi 31 Ocak, 2023.
6. https://www.webofknowledge.com. Erişim tarihi 30 Ocak, 2023.
7. Farooq RK, Rehman SU, Ashiq M, Siddique N, Ahmad S. Bibliometric analysis of coronavirus disease (COVID-19) literature published in Web of Science 2019-2020. J Family Community Med. 2021;28(1):1-7.
8. Iscaife A, Marchini GS, Srougi V, et al. The urologist's role in the fight of COVID-19 pandemic: mandatory mindset shift on the frontline. Int Braz J Urol. 2020;46(5):879-882.
9. Teoh JY, Ong WLK, Gonzalez-Padilla D, et al. A Global Survey on the Impact of COVID-19 on Urological Services. Eur Urol. 2020;78(2):265-275.
10. Simoni M, Hofmann MC. The COVID-19 pandemics: Shall we expect andrological consequences? A call for contributions to andrology. Andrology. 2020;8(3):528-529.
11. Yang M, Chen S, Huang B, et al. Pathological Findings in the Testes of COVID-19 Patients: Clinical Implications. Eur Urol Focus. 2020;6(5):1124-1129.
12. Di Bitetti MS, Ferreras JA. Publish (in English) or perish: The effect on citation rate of using languages other than English in scientific publications. Ambio. 2017;46(1):121-127.
13. Dal-Re R, Morell F. The COVID-19 Pandemic Changes the Scientific Publication System. Arch Bronconeumol. 2021;57:17-18.
14. Siddiqui S, Ahmed A, Azim A. Selecting Journal for Publication in the Era of "Haste Predatory Journals and COVID-19". Indian J Crit Care Med. 2020;24(12):1284-1285.
15. Rocco B, Sighinolfi MC, Sandri M, et al. The dramatic COVID 19 outbreak in Italy is responsible of a huge drop of urological surgical activity: a multicenter observational study. BJU Int. 2021;127(1):56-63.