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How did research article publications on the COVID-19 pandemic progress in the Q1 ranked SCImage index journals in 2020?

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ABSTRACT

Aim: The aim of this paper is to survey the COVID-19 research articles in Q1 ranked high SJR index journals according to the SCImago journal rank indicator.

Material and Method: The study was carried out on the website named "https://www.scimagojr.com". The search was conducted by selecting the criteria "medicine", "pathology and forensic medicine", "all regions/countries", "journals", and the "2020" as the year. Only 50 scientific journals met these criteria. COVID-19-related and unrelated research articles published in these journals were manually scanned. Review articles, book reviews, conferences, commentaries, case reports, mini reviews, short communications, letters to the editor were not included in the study. COVID-19 related research articles were divided into groups in terms of antemortem and postmortem type of the study by reviewing the abstract of the studies and also grouped according to the country of first author and countries of all authors.

Results: A total of 3906 research articles published in 50 journals with Q1 SJR index over 0.887 were investigated. Of these 3906 research articles, 40 of them were related to COVID-19. 31 of these 40 COVID-19 related research articles were antemortem and 9 were postmortem studies. Among these 40 COVID-19 related scientific articles, the first author of publications belonged to 12 countries. United States, Australia, China, and Italy were found to be the most productive countries for published research articles on COVID-19 in selected high SJR index journals. The United States was the country with the highest number of first authors with 15 articles. China was the country with the highest number of multinational author list research articles.

Conclusion: We believe that the number and content of studies conducted in these high-quality scientific journals on COVID-19 make important contributions and understanding in the fields of disease transmission, disease prevention, course and severity of symptoms, pathophysiology, molecular characteristics, and treatment approach processes.

Keywords: COVID-19, SARS-CoV-2, publications, SCImage index

INTRODUCTION

The COVID-19 pandemic caused by SARS-CoV-2 emerged in late 2019 and negatively affected all humanity as a global health problem, infecting approximately 261 million people in total of 224 countries as of November 29, 2021, and causing the death of more than 5 million people in the World (1,2).

According to world health organization data, COVID-19 disease is asymptomatic in about 80% of cases. The remaining 20% show symptoms of respiratory system disease, and 5% of them need respiratory system support. Although COVID-19 disease primarily affects the respiratory system, extrapulmonary organs such as the heart, liver, kidneys, and nervous system can also be affected (2).

Coronaviruses are enveloped, non-segmented, positive single-stranded RNA viruses (3,4). It is reported that there is evidence that human-to-human transmission of COVID-19 occurs through respiratory particles, personal contact and fecal oral route (3). SARS-CoV-2 (COVID-19) infection causes upper respiratory tract infections and most people infected with COVID-19 recover with mild to moderate symptoms (5). However, elder people and people associated with comorbidities like cardiovascular disease, hypertension, diabetes, obesity, respiratory disease, chronic kidney, and liver disease have higher mortality rates (3-7). Diffuse alveolar damage, the histomorphologic counterpart of acute respiratory distress syndrome (ARDS) in SARS-COV-2 infected individuals, is thought to be responsible for the

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majority of deaths, followed by shock, heart damage, pulmonary embolism, thrombosis, and stroke (4,6,7). SARS-CoV-2 has a 79.6% similarity in genetic sequence with SARS-CoV, which causes severe acute respiratory syndrome (SARS), and MERS-CoV, which causes Middle East respiratory syndrome (MERS) (3,8,9).

With the rapid spread of COVID-19 cases all over the world, scientific studies have carried out quickly in the very beginning of the disease, especially in China, which is known as the country where the disease begun. Scientific studies related to COVID-19 have the priority for the rapid collection of information about the disease mechanism, pathogenesis, and the development of treatment modalities. In particular, postmortem autopsy studies are considered to be the gold standard in understanding the pathophysiology of COVID-19 disease (3,10). The aim of this paper is to investigate the COVID-19 studies in Q1 journals with SJR index higher than 0.887 in the ranking made according to the SCImago journal rank indicator.

MATERIAL AND METHOD

Since this study is a data mining study, there is no need for ethics committee approval. All procedures applied in the study were carried out in accordance with the Declaration of Helsinki and ethical criteria.

SCImago journal rank indicator is described as "a measure of journal's impact, influence, and prestige. It expresses the average number of weighted citations received in the selected year by the documents published in the journal in the three previous years".

This study was conducted on the website at "https://www.scimagojr.com". The search was made by selecting the criteria "medicine" as the subject areas of the journal, "pathology and forensic medicine" as the subject category, "all regions/countries" as the country, "journals" as the type of scientific material, and 2020 as the year. Scientific journals classified as "Q1 journals with SJR index higher than 0.887" in the ranking made according to the SCImago journal rank indicator were included in the study.

There were 50 scientific research articles that met these criteria. COVID-19-related research articles published in these high-quality journals were manually scanned. Only published research articles related to COVID-19 were investigated in this study. Review articles, book reviews, conferences, commentaries, case reports, mini reviews, short communications, letters to the editor were not included in the study. The title of the research articles in each journal was inspected manually for the presence of the terms "SARS-CoV-2" and "COVID-19". Research articles were divided into two groups, COVID-19 related and unrelated. Afterward, the COVID-19 related research articles group were divided into groups in terms of antemortem and postmortem type of the study by reviewing the abstract of the studies. In addition, COVID-19 related research articles were also reviewed according to the countries of the authors. The nation of the first author noted and the whole authors of the study were considered the criterion to be one country or multi country (multinational) type of study.

RESULTS

In this study, a total of 3906 research articles published in 50 journals with Q1 SJR index over 0.887 were reviewed in 2020. There are a total of 50 journals included in the Q1 SJR index over 0.887, and 13 of them published research articles related to COVID-19 in 2020. Of these total 3906 research articles published, 40 of them were related to COVID-19 (**Table 1**). COVID-19 related research articles were primarily composed of antemortem studies. Of these 40 COVID-19 related research articles, 31 were antemortem and 9 were postmortem studies (**Table 2**). Among these 40 scientific journals, the first author's country of COVID-19 publications belonged to a total of 12 countries namely the United States, Australia, China, Italy, and United Kingdom, Georgia, Germany, Spain, Republic of Korea, Switzerland, Brasil, Singapore when ranked from the highest number of publications to the lowest with the last 8 country same as 1 research article (**Figure 1**) (**Table 3**). Six of these 40 research articles have authors more than one country (**Table 3**). The publishing countries of scientific journals selected according to the established criteria were the United Kingdom, USA, Germany, Ireland, Netherlands, Japan, India, Switzerland, and Denmark. 21 of these 50 scientific journals selected according to the established criteria belonged to the United Kingdom, 17 of them to the USA, five to Germany, two to Ireland, one to each country of the Netherland, Japan, India, Switzerland, and Denmark.

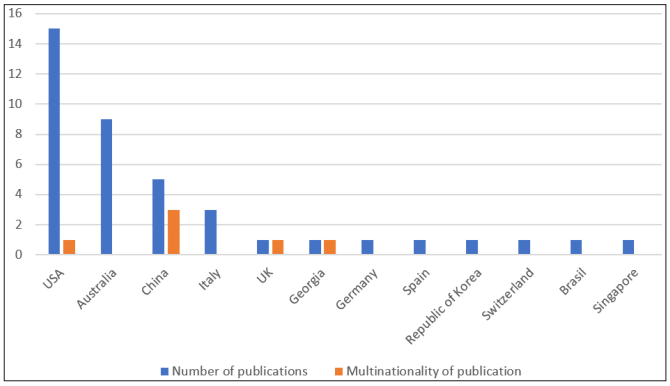

Figure 1. The country of publications and multinationality of COVID-19 studies in Q1 SJR index over 0.887 journals in 2020

Table 1. Ratio of COVID-19 related research articles in 2020 in Q1 SJR index over 0.887 journals

Research Articles	Number (%)
COVID-19 related	40 (1.02%)
Non-COVID-19 related	3866 (98.98%)
TOTAL	3906 (100)

Table 3. The country of the first authors of publications and multinationality of COVID-19 studies in selected journals in 2020

Country	Number of publications	Multinationality of publication
USA	15	1
Australia	9	0
China	5	3
Italy	3	0
UK	1	1
Georgia	1	1
Germany	1	0
Spain	1	0
Republic of Korea	1	0
Switzerland	1	0
Brasil	1	0
Singapore	1	0
TOTAL	40	6

DISCUSSION

The COVID-19 pandemic has become a global health problem and has caused the death of a large number of people all over the world. In COVID-19 disease process, humanity has not only struggled with the disease itself, but also with the secondary socioeconomic problems it has created in society. COVID-19 disease caused by SARS-CoV-2, which spreads worldwide from Wuhan, China, and caused %2 of the death of COVID-19 patients as an average mortality rate worldwide, is a member of the beta coronavirus family (1,3,11-13). It is reported that during the pandemic process, a lot of scientific researches was carried out, in particular, the molecular and biological mechanisms of COVID-19 as well as diagnosis and treatment (14-22). Analyzing the literature related to COVID-19 helps us to evaluate the pathophysiologic mechanism of the disease and understand its progression.

The ratio of the antemortem studies to the postmortem autopsy studies may also be a matter of curiosity in some aspects. There are also some combined antemortem and postmortem studies in the literature (23,24). In our study, we found that there were more COVID-19 related antemortem research studies than postmortem ones. Postmortem studies are very valuable in terms of assessing the pathogenesis of the disease caused by SARS-CoV-2 and its systemic effects on organs as a whole. In contrast, antemortem studies have provided important and valuable information about the clinical course, symptoms, therapeutic and diagnostic processes

Table 2. Q1 SJR index over 0.887 journals list and COVID-19 related research articles in 2020

Q1 SJR index over 0.887 journals	Antemortem research articles	Postmortem research articles	Total number of research articles
Annual Review of Pathology: Mechanisms of Disease	0	0	0
Cell Systems	2	0	2
Acta Neuropathologica	0	0	0
Criminology	0	0	0
Acta neuropathologica communications	0	0	0
Journal of Pathology	0	1	1
American Journal of Surgical Pathology	0	0	0
Modern Pathology	4	3	7
Neuropathology and Applied Neurobiology	0	0	0
Journal of Molecular Diagnostics	4	0	4
Journal of Quantitative Criminology	0	0	0
Justice Quarterly	0	0	0
Brain Pathology	0	0	0
Journal of Pathology: Clinical Research	0	0	0
Aging and Disease	4	0	4
Archives of Pathology and Laboratory Medicine	0	0	0
Cell and Tissue Research	0	0	0
Histopathology	2	3	5
Advances in Anatomic Pathology	0	0	0
American Journal of Pathology	3	0	3
Aggression and Violent Behavior	0	0	0
Laboratory Investigation	1	0	1
Expert Review of Molecular Diagnostics	0	0	0
Journal of Neuropathology and Experimental Neurology	0	0	0
Crime and Delinquency	0	0	0
Journal of Neurodevelopmental Disorders	0	0	0
British Journal of Criminology	0	0	0
Pathology	10	0	10
Theoretical Criminology	0	0	0
European Journal of Cell Biology	0	0	0
Cytometry. Part A : the journal of the International Society for Analytical Cytology	0	0	0
Criminal Justice and Behavior	0	0	0
BBA Clinical	0	0	0
Virchows Archiv	0	2	2
Human Pathology	0	0	0
Seminars in Diagnostic Pathology	0	0	0
Current Pathobiology Reports	0	0	0
Forensic Science International: Genetics	0	0	0
Science and Justice - Journal of the Forensic Science Society	0	0	0
Forensic Toxicology	0	0	0
Journal of Clinical Pathology	0	0	0
Journal of Pathology Informatics	1	0	1
Endocrine Pathology	0	0	0
Homicide Studies	0	0	0
International Journal of Legal Medicine	0	0	0
Pathobiology	0	0	0
International Journal of Gynecological Pathology	0	0	0
Forensic Science International	0	0	0
APMIS	0	0	0
Journal of Oral Pathology and Medicine			
TOTAL	31	9	40

of COVID-19 disease. We think that the higher number of antemortem studies is due to the fact that the centers conducting postmortem examinations are limited. In addition, in COVID-19 cases, it is necessary to apply maximum biosecurity protection methods to perform an autopsy and take postmortem samples. Due to such factors that caused delays in the process, at the very beginning of the COVID-19 pandemic, autopsy studies and, as a result, data obtained from autopsies were limited (3,7). In the later days of COVID-19 pandemic period, knowledge of protection methods and the information obtained about the disease increased, and then postmortem studies also increased in number.

The subject group we investigated in this study were those related to pathology and forensic medicine. Among the 50 scientific journals selected according to the predetermined criteria, the journal that published the most research articles related to COVID-19 was named "Pathology". The journal "Pathology" published a special issue for COVID-19 and 10 research articles were published in this special issue. Journals associated with pathology during the pandemic process have provided important information related to the mechanism of COVID-19 disease. Of the 50 scientific journals we reviewed, 4 had the word "forensic" and 4 had the word "criminology" in the name of the journal. There was no research article related to COVID-19 disease in these 8 journals in 2020. Although the lack of COVID-19-related studies in journals associated with the field of criminology was considered normal, it was interesting that there were no postmortem research studies in these high quality forensic journals.

The majority of the studies conducted on COVID-19 related research papers were of the United States in origin as the first author's country. Of these 15 United States origin studies, only one had a multinational list of authors. There are some recent published multinational studies on COVID-19 (25-27). We think that multinational studies are important, especially in terms of sharing the knowledge and experience collected about COVID-19 in different countries. There were some multinational studies It is an interesting detail that despite the fact that the SARS-CoV-2 caused COVID-19 disease originated in the Chinese city of Wuhan, the most research publications on this subject in the journals included in the criteria we have determined were the authors of the United States. China, on the other hand, was the country that had the highest number of scientific research articles with multinational authors list on this subject, with 3 in number. We think that this is primarily due to the fact that the disease caused by SARS-CoV-2 originated from the Chinese city of Wuhan, and the scientists of this country have shared the information they have obtained with scientists located internationally at the very beginning of the disease. Senel and Topal (28) investigated all the coronavirus-related literature between the year 2000-2009 and found that a total of 4810 documents were produced, and reported as 82% of them were original articles. They also stated that the most productive countries in scientific publications related to COVID-19 were United States, China, Germany, United Kingdom, and Netherlands, and also reported that almost every country contributed to the literature, except for some countries in Asia and Africa (28). In our study, we identified the United States, Australia, China, and Italy as the most productive countries for research articles on COVID-19 in selected high SJR index journals.

There are various retrospective and data mining studies evaluating the contents and results of COVID-19 related scientific studies. Zdravkovic et al (29) reported that search for the word "COVID-19" or "SARS-CoV-2" in PubMed revealed 4,670 scientific publications in about 3 months of early 2020. In this study, it was stated that a large number of scientific studies related to COVID-19 were supported by the ethics committees and the editors and were published quickly (29). However, they expressed that this process, which is progressing rapidly, raises concerns about the quality of scientific studies (29). In that study, it is stated that the first COVID-19 transmission report in asymptomatic individuals was later found to be defective (29,30). There were also two main analyses of hydroxychloroquine use and COVID-19 related cardiovascular mortality that were withdrawn because the source data could not be verified (29,31,32). In addition, country based and publication content-based studies related to COVID-19 publications are also available in the literature (2,5). A review by Ciftciler et al (5) described the scientific studies related to COVID-19 conducted in Turkey. In addition, genetic and molecular studies on COVID-19 by Tanoğlu and Esen (2) have been retrospectively investigated. Another study by Inanc et al (3) analyzed the studies of COVID-19 in rural areas of Turkey in detail. H and Patil (33) investigated Indian publications of SARS-CoV-2. In our study, COVID-19 related research studies in journals with a high SCImage index in the field of pathology and forensic medicine were investigated and reviewed.

Limitations of study

As some of these scientific journals selected according to the criteria in our study are related to certain special topics such as forensic, neuropathology, justice, and criminology, the lack of publications related to COVID-19 in these journals has an obstacle for possible comparisons among these scientific journals.

CONCLUSION

The contribution of scientific studies conducted in the process of developing treatment and understanding the pathogenesis of COVID-19 disease is the priority, and we consider that data on the number of research publications in scientific journals with a high value of the SJR index are important in this process.

While humanity is struggling with the health and socioeconomic problems caused by the COVID-19 pandemic, scientific research articles, especially high-quality publications, have been decisive in understanding the progression, mechanism, and pathophysiology of the disease and have led to the development of treatment protocols and procedures. Therapeutic studies on SARS-CoV-2 infection and newly developing mutations are continuing intensively in the world. The number and content of studies conducted in these high-quality scientific journals on this subject make important contributions to the understanding of disease transmission, disease prevention, course and severity of symptoms, pathophysiology, molecular characteristics, and treatment approach processes.

ETHICAL DECLARATIONS

Ethics Committee Approval: This current study is a data-mining study and only contain open access data. There is no need to obtain ethical committee approval.

Informed Consent: There is no need to obtain informed consent.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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