COVID-19 Publications in Allergy Journals, 2020-2021: A Bibliometric Analysis

D'Amelio CM[1,2,3], Aquerreta I[4], Cacho-Asenjo E[3,5], Gastaminza G[1,2,3], Martinez-Simon A[3,5], Núñez-Córdoba JM[6,7]

[1]*Department of Allergy and Clinical Immnunology, Clínica Universidad de Navarra, Pamplona, Spain*
[2]*RICORS Red De Enfermedades Inflamatorias (REI) - RD21/0002/0028, Madrid, Spain*
[3]*IdiSNA, Navarra Institute for Health Research, Pamplona, Spain*
[4]*Pharmacy Service, Clínica Universidad de Navarra, Pamplona, Spain*
[5]*Department of Anaesthesia and Critical Care, Clínica Universidad de Navarra, Pamplona, Spain*
[6]*Research Support Service, Central Clinical Trials Unit, Clínica Universidad de Navarra, Pamplona, Spain*
[7]*Institute of Data Science and Artificial Intelligence, University of Navarra, Pamplona, Spain*

The COVID-19 pandemic generated an overwhelming number of publications associated with a single disease within a remarkably short time frame [1]. Some COVID-19–related bibliometric analyses have focused on various medical specialties [2-6], although the specialty of allergy remains unexplored. Bibliometric studies have yielded substantial benefits [7].

We performed a bibliometric analysis to quantify the contribution of allergy journals to COVID-19 research. We calculated the proportion of COVID-19 publications in allergy journals from the onset of the pandemic to the end of 2021, described COVID-19 publication trends, contrasted COVID-19 research topics in allergy with nonallergy journals, and evaluated the profile of publications in allergy journals according to journal impact factor (IF).

This evaluation is embedded in the Covid Content Curation Project (Research Grant Number: 0011-3638-2020-000001, Departamento de Salud, Gobierno de Navarra), an ongoing research project to design an artificial intelligence platform for grading COVID-19 publications according to relevance. Allergy journals were those included in the subject category "Allergy-Science Citation Index Expanded (SCIE)" of the Journal Citation Reports (JCR) dataset. Journal IF quartiles were obtained from Clarivate Analytics Web of Science.

We downloaded data from 213 651 COVID-19 publications available on PubMed. After exclusions, 205 982 COVID-19 publications were available for analysis (Supplementary Figure 1). The cumulative total of COVID-19 publications
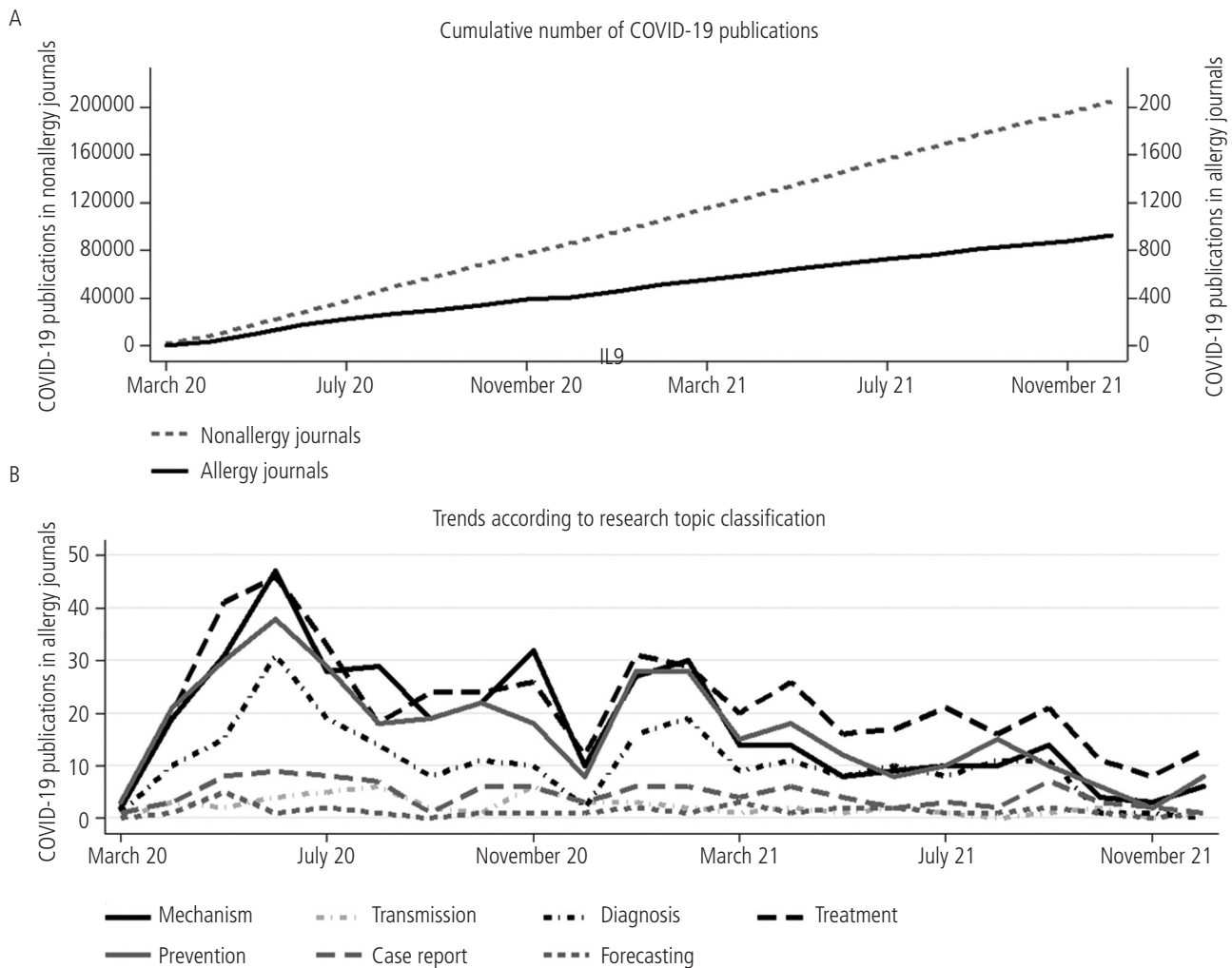
A

Cumulative number of COVID-19 publications

B

Trends according to research topic classification

Figure. COVID-19 publications in allergy and nonallergy journals (March, 2020 to December, 2021).

in allergy journals was 923 (4.5‰; 95%CI, 4.2‰ to 4.8‰) (Figure).

The most frequent research topics in COVID-19 publications in allergy journals were "treatment" (476 publications, 51.6%) and "mechanism" (388 publications, 42.0%) (Supplementary Table 1). There were clear differences in the frequency of these research topic classification categories compared with nonallergy journals, especially for "mechanism". The "mechanism" topic showed an increment of 13.2 percentage points (95%CI, 10.0-16.4; $P<.001$) in favor of allergy journals. The between-group differences were 8.6 percentage points (95%CI, 5.3-11.8; $P<.001$) for "treatment" and 6.8 percentage points (95%CI, 4.0-9.5; $P<.001$) for "diagnosis", again, both in favor of the allergy journals group (Supplementary Table 1). The frequency of "prevention" and "case report" topics was slightly higher in allergy journals than in nonallergy journals, although these differences were not statistically significant.

The prevalence of the "transmission" and "forecasting" topics was lower among allergy journals than nonallergy journals. The "transmission" theme was addressed in 48 publications (5.2%) in allergy journals and in 24 513 publications (12.0%) in nonallergy journals ($P<.001$). COVID-19 "forecasting" was identified in 30 publications (3.3%) in allergy journals compared with 14 167 publications (6.9%) in nonallergy journals ($P<.001$).

The Figure shows trends for COVID-19 publications in allergy journals according to research topic categories. Overall, "mechanism", "treatment", and "prevention" remained the leading research themes throughout the study period. This trend was especially noticeable for "treatment" in 2021.

According to IF, COVID-19 publications in allergy journals were mostly published in journals ranked in the first quartile (61.9%) (Supplementary Table 2). The remaining COVID-19 papers were published in allergy journals ranked in the second (15.7%), third (15.4%), and fourth (7.0%) IF quartiles. The third and fourth quartiles showed the highest proportion of publications in allergy journals for all research topics except for "mechanism", which was predominant in the second quartile.

Overall, no remarkable differences in the frequencies of research topics were observed across IF quartiles, although some statistically significant associations between topic and IF quartile were observed when IF categories were compared with the IF quartile with the highest proportion of publications on a specific research topic (reference category). The odds of the "mechanism" topic for publications in the first quartile decreased by 35% (95%CI, 6%-55%; P=.02) compared with the quartile with the highest proportion of publications dealing with the "mechanism" topic (second quartile). The odds of the "transmission" topic for publications in the first quartile decreased by 65% (95%CI, 19%-85%; P=.02) compared with the fourth quartile. Compared with the fourth quartile, the odds of the "transmission" topic for publications in the second quartile decreased by 75% (95%CI, 19%-92%; P=.02). The odds of the "diagnosis" topic decreased by 43% (95%CI, 3%-67%; P=.04) in the first quartile and by 57% (95%CI, 17%-78%; P=.01) in the third quartile compared with the fourth quartile. The odds of the "treatment" topic decreased by 32% (95%CI, 1%-53%; P=.04) in the first quartile compared with the reference category (third quartile). Comparison with the fourth quartile showed that the odds of publications addressing "prevention" among allergy journals were lower in the first quartile (OR=0.51; 95%CI, 0.30-0.85; P=.01) and in the third quartile (OR=0.54; 95%CI, 0.30-0.98; P=.04).

The distribution of COVID-19 publications in allergy journals of the highest scientific impact (first IF quartile) is shown in Supplementary Figure 2. The first IF quartile comprises 7 journals with IFs ranging from 6.377 to 13.146. The top 3 allergy journals with greatest number of publications included close to 80% of all COVID-19 articles published in first-quartile allergy journals. This triad of journals includes "The Journal of Allergy and Clinical Immunology: In practice" (IF, 8.861; n=183 COVID-19 publications, 32.1%), "Allergy" (IF, 13.146; n=150 COVID-19 publications, 26.3%), and "The Journal of Allergy and Clinical Immunology" (IF, 10.793; n=120 COVID-19 publications, 21.0%). The remaining allergy journals in the first IF quartile were "Pediatric Allergy and Immunology" (IF, 6.377; n=49 COVID-19 publications, 8.6%), the "Journal of Investigational Allergology and Clinical Immunology" (IF, 7.033; n=33 COVID-19 publications, 5.8%), "Contact Dermatitis" (IF, 6.600; n=29 COVID-19 publications, 5.1%), and "Clinical Reviews in Allergy & Immunology" (IF, 8.667; n=7 COVID-19 publications, 1.2%).

Our study provides an initial overall picture of COVID-19 publications in allergy journals. It also provides a profile of allergists and clinical immunologists' scientific contributions to the literature on the global COVID-19 pandemic and may serve as a basis for further research.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

References

1. Else H. How a torrent of COVID science changed research publishing - in seven charts. Nature. 2020;588(7839):553.
2. Vishwanathan K, Kambhampati SBS, Vaishya R. Top 100 cited articles on diabetes mellitus and Covid-19: A bibliometric analysis. Diabetes Metab Syndr. 2021;15(4):102160.
3. Soytas RB. A Bibliometric Analysis of Publications on COVID-19 and Older Adults. Ann Geriatr Med Res. 2021;25(3):197-203.
4. Pasin O, Pasin T. A bibliometric analysis of rheumatology and COVID-19 researches. Clin Rheumatol. 2021;40(11):4735-40.
5. Martinez-Simon A, Honorato-Cia C, Cacho-Asenjo E, Aquerreta I, Panadero-Sanchez A, Núñez-Córdoba JM. COVID-19 publications in anaesthesiology journals: a bibliometric analysis. Br J Anaesth. 2022;128(3):e239-41.
6. Akintunde TY, Musa TH, Musa HH, Musa IH, Chen S, Ibrahim E, et al. Bibliometric analysis of global scientific literature on effects of COVID-19 pandemic on mental health. Asian J Psychiatr. 2021;63:102753.
7. Wallin JA. Bibliometric methods: pitfalls and possibilities. Basic Clin Pharmacol Toxicol. 2005;97(5):261-75.

Gabriel Gastaminza
Clínica Universidad de Navarra
Pio XII, 36
31008 Pamplona, Spain
E-mail: gastaminza@unav.es