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

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The COVID-19 pandemic has generated an overwhelming amount of one single disease related publications within a remarkably short time frame [1]. Some COVID-19 related bibliometric analyses have focused on several medical specialties [2-6], but the allergy sphera remains unexplored. Bibliometric studies have proved substantial benefit [7].

This is a bibliometric analysis to quantify the contribution of allergy journals to COVID-19 research, calculating the proportion of COVID-19 publications in allergy journals from the COVID-19 pandemic onset to the end of 2021, describing COVID-19 publication trends and contrasting COVID-19 research topics in allergy with non-allergy journals, and evaluating the profile of publications in allergy journals according to journal impact factor (IF).

This evaluation is embedded into the Covid Content Curation Project (Research Grant Number: 0011-3638-2020-000001, Departamento de Salud, Gobierno de Navarra), an ongoing research to design an artificial intelligence platform for relevance grading COVID-19 scientific publications. Allergy journals were those

 
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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 related 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 in allergy journals was 923 [4.5‰; 95% confidence interval (95% CI), 4.2‰ to 4.8‰] (**Figure**).

The most frequent research topics of COVID-19 publications in allergy journals were “treatment” (n = 476 publications, 51.6%) and “mechanism” (n = 388 publications, 42.0%) (**Supplementary Table 1**). There were clear differences in frequency of these research topic classification categories compared with non-allergy journals, especially for “mechanism”. The “mechanism” topic showed an increment of 13.2 (95% CI, 10.0 to 16.4; p<.001) percentage points in favour of allergy journals. The between-group differences were 8.6 percentage points (95% CI, 5.3 to 11.8; p<.001) for “treatment”, and 6.8 percentage points (95% CI, 4.0 to 9.5; p<.001) for “diagnosis”, both also in favour of the allergy journals group (**Supplementary Table 1**). The “prevention” and “case report” topics showed a slightly higher frequency in allergy journals compared with non-allergy journals, although these differences were not statistically significant.

The “transmission” and “forecasting” topics were those with fewer prevalence among allergy journals compared with non-allergy journals. The “transmission” theme was addressed in 48 publications (5.2%) in allergy journals, whereas





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24,513 publications (12.0%) dealt with this topic in non-allergy journals (p<.001). COVID-19 “forecasting” was identified in 30 publications (3.3%) of allergy journals versus 14,167 publications (6.9%) in non-allergy journals (p<.001).

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

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 the “mechanism” topic that was predominant in the second quartile category.

Overall, frequencies of research topics did not show remarkable differences across IF quartile categories, although some statistically significant associations between topic and IF quartile were observed when IF categories were compared to 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 declined by 35% (95% CI, 6% to 55%; p = .02) compared with the quartile with the highest proportion of publications dealing with “mechanism” topic (second quartile). The odds of the





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"transmission" topic for publications in the first quartile declined by 65% (95% CI, 19% to 85%; p = .02) compared with the fourth quartile. Comparing with the fourth quartile, the odds of the "transmission" topic for publications in the second quartile decreased by 75% (95% CI, 19% to 92%; p = .02). The odds of the "diagnosis" topic decreased by 43% (95% CI, 3% to 67%; p = .04) in the first quartile and by 57% (95% CI, 17% to 78%; p = .01) in the third quartile, both compared to fourth quartile. The odds of the "treatment" topic decreased by 32% (95% CI, 1% to 53%; p = .04) in the first quartile compared to the reference category (third quartile). When comparing with the fourth quartile, the odds of publications addressing the prevention topic among allergy journals were lower in the first quartile [Odds ratio (OR) = 0.51; 95% CI, 0.30 to 0.85; p = .01] and in the third quartile (OR = 0.54; 95% CI, 0.30 to 0.98; p = .04).

The distribution of COVID-19 publications in allergy journals of highest scientific impact (first IF quartile) is shown in **Supplementary Figure 2**. The first IF quartile comprises seven journals with IF from 6.377 to 13.146. The top three allergy journals with greatest publication contribution include close to 80% of total 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





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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%).

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

## Conflict of interests

The authors declare that they have no relevant conflicts of interest.

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