



# Articles' retraction during the pandemic: COVID-19 is not the pacemaker

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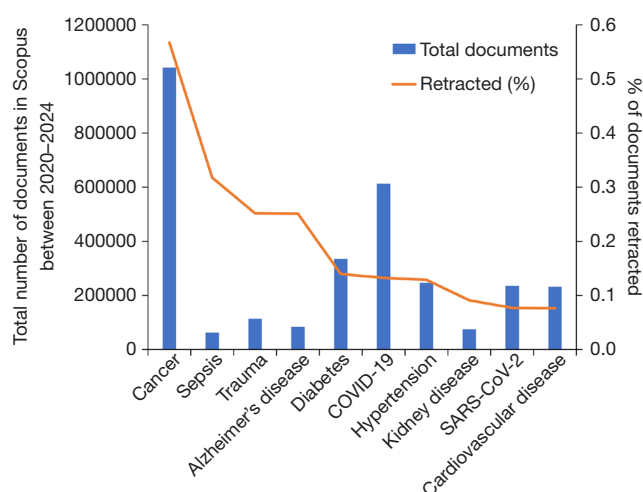
The coronavirus disease 2019 (COVID-19) pandemic has had a dramatic impact on scientific publishing in a number of ways, including rapid publishing, increased availability of “pre-print” articles, enhanced collaborative data sharing and a shift in research focus to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (1). The need to obtain timely information on the diagnosis and clinical management of patients with COVID-19 has forced several scientific journals to change their usual peer-review process to accommodate the rapid influx of a large number of articles on COVID-19 (2). The expedited acquisition of original scientific data, combined with the increasing availability of open access resources and the accelerated peer review process, has raised concerns about the reliability of scientific information published during the pandemic (3), and has led to a significant number of COVID-19 articles being retracted in journals indexed in the most reliable databases such as PubMed, Scopus and Web of Science (4).

To obtain up-to-date information on the retraction of articles on COVID-19 during the pandemic, we access the Scopus database using the keywords for a number of diseases that represent the most common causes of death worldwide (i.e., in alphabetical order: “Alzheimer’s disease”; “Cancer”; “Cardiovascular disease”; “COVID-19”; “Diabetes”; “Hypertension”; “Kidney disease”; “SARS-CoV-2”; “Sepsis”; “Trauma”), either combined or not with the keywords “retraction” or “retracted”. Our search

was not limited to a specific language, but to the period between January 1, 2020 and the present date (i.e., July 10, 2024). We therefore calculated the total number of articles published for each medical condition and the sum of articles with the keywords “retraction” or “retracted” to finally calculate the percentage of articles retracted. The study was exempt from Institutional Review Board review because Scopus is a publicly accessible scientific database.

The results of our analysis are shown in *Figure 1*. Most articles published during the pandemic years contained the keyword cancer, followed by COVID-19, diabetes, hypertension and SARS-CoV-2. The highest percentage of documents on the diseases covered in our analysis that were retracted contained the keyword “cancer” (0.57%), followed by sepsis (0.32%), trauma and Alzheimer’s disease (0.25% each). The percentage of retracted articles containing the keywords COVID-19 and SARS-CoV-2 was 0.13% and 0.08%, respectively. In terms of the number of articles withdrawn about COVID-19 and SARS-CoV-2 during the pandemic, the rate for COVID-19 was 80/90,511 (0.09%) in 2020, 178/169,962 (0.10%) in 2021, 146/168,506 (0.09%) in 2022, 286/132,790 (0.22%) in 2023 and 104/51,357 (0.20%) in the first half of 2024. The corresponding figures for SARS-CoV-2 were 30/30,547 (0.10%) in 2020, 53/85,600 (0.06%) in 2021, 51/63,743 (0.08%) in 2022, 36/38,516 (0.09%) in 2023 and 11/16,762 (0.07%) in the first half of 2024. No significant Spearman’s correlation

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**Figure 1** Total number of documents available in Scopus between January 1, 2020 and July 10, 2024 and percentage of those retracted which contained the keywords COVID-19, SARS-CoV-2 and other common medical conditions. COVID-19, coronavirus disease 2019; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

was found between the publication year and COVID-19 ( $r=0.712$ ;  $P=0.172$ ) or SARS-CoV-2 ( $r=-0.300$ ;  $P=0.624$ ).

The results of our analysis in Scopus show that articles on COVID-19 (or SARS-CoV-2) have not been retracted more frequently than those involving other common pathologies such as cancer, sepsis, trauma, Alzheimer's disease and even diabetes. Nonetheless, the trend of article retractions on COVID-19 and/or SARS-CoV-2 has gradually increased between 2020 and 2023, emphasizing that the urgency of publishing new information on the diagnosis and treatment of COVID-19 combined with perhaps too rapid and thus inaccurate peer-review should not be seen as the only reasons for article retractions. The retraction of articles only tells part of the story, as some retracted articles may have been technically sound, as evidenced by the fact that they were republished after extensive further peer-review by other journals that were informed of the retraction. The retraction policy during the COVID-19 pandemic could therefore not only be due to flawed or rapid and inaccurate peer-review, but also to unexpected or even undesirable results that ran counter to the mainstream narrative and were ultimately justified by political mainstreaming and censorship (5).

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## Footnote

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