

The remarkable social impact of clinical trials of COVID-19 drugs and vaccines

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ABSTRACT

Research on COVID-19 was widely reported in journals and received wide media coverage. During the first year of the pandemic, 627 papers were published about clinical trials for COVID-19 drugs and vaccines. The three articles that had the greatest social impact (Altmetric Attention Score, AAS) evaluated the vaccines Gam-COVID-Vac, tozinameran, and ChAdOx1. *The Lancet's* publication of the Gam-COVID-Vac clinical trial had the highest AAS and the highest AAS of all articles ever published in this journal. *The Lancet and Lancet Infectious Diseases* were the only journals to publish papers on clinical trials about vaccines developed in non-Western countries.

Key words: Clinical trials; COVID-19; social impact

The COVID-19 pandemic focused social attention on healthcare and biomedical research. Unsurprisingly, research on COVID-19 was widely reported in academic journals [1], and these reports often received wide media coverage and social attention. Altmetrics is a bibliometric approach that aims to estimate the social impact of scientific papers. The Altmetric company's Altmetric Attention Score (AAS) is a weighted measure of the attention a paper has received in different sources, including news, blogs, social media, policy statements, patents, and academic sources. The AAS has been used to analyse the social impact of papers published about COVID-19 [2].

Clarivate's Web of Science (WoS) lists 627 papers about clinical trials for COVID-19 drugs and vaccines published in 2020. Our analyses of data retrieved from the WoS and Altmetric databases on 11 December 2021 revealed that the three most-cited of these articles reported trials testing dexamethasone, lopinavir-ritonavir, and

hydroxychloroquine plus azithromycin; however, the three articles that had the greatest social impact reported trials testing the vaccines Gam-COVID-Vac (Sputnik-V, Gamaleya Institute), tozinameran (Comirnaty, Pfizer/BioNtech), and ChAdOx1 (Vaxzevria, AstraZeneca/Oxford) [3]. The 50 most-cited articles about clinical trials of drugs or vaccines for COVID-19 (12.5% of the articles) account for 40.0% of the total AAS; 7 of these articles are in Altmetric's all-time top 100.

Remarkably, *The Lancet's* publication of the Gam-COVID-Vac clinical trial [4] had the highest AAS in our analysis, the highest AAS of all articles ever published in this journal, and the 10th highest AAS of the 20 million articles monitored by Altmetric. Among the 50 most-cited articles, 25 were published in *NEJM* and 10 in *The Lancet*; these 35 articles accounted for 82.4% of the AAS of these 50 papers. Two of the remaining 15 articles were published in *Lancet Infectious Diseases*.

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The Lancet's social impact is noteworthy in various respects. Whereas the 25 articles published in *NEJM* accounted for 44.3% of the social attention of the 50 most-cited articles, the 12 articles published in *The Lancet* and *Lancet Infectious Diseases* accounted for 43.3%, a relatively much higher impact per article. *The Lancet* and *Lancet Infectious Diseases* were the only journals to publish papers on clinical trials about vaccines developed in non-Western countries (four papers on Chinese vaccines, including two on Ad5-nCoV, one on Ad5-nCoV, and one on BBIBP-CorV, as well as two papers on the Russian Gam-COVID-Vac vaccine). This is important because the article written by Russian authors that *The Lancet* published about the Gam-COVID-Vac Russian vaccine received the most social attention of any article.

The Lancet's communication policies probably favour greater social impact, including its greater permeability to authors from all over the world compared to other major journals [5], as confirmed by the publication of the six non-Western vaccine trials in *The Lancet* and *Lancet Infectious Diseases*. Furthermore, unlike *NEJM*, *JAMA*, and *BMJ*, which are mostly cited in the press of the countries where they are published, *The Lancet* is cited more often in other countries, giving it the least nationalistic press citation pattern [6].

CONFLICT OF INTEREST

The authors declare that they have no competing interests.

REFERENCES

1. Xia D, Yao R, Wang S, Chen G, Wang Y. Mapping Trends and Hotspots Regarding Clinical Research on COVID-19: A Bibliometric Analysis of Global Research. *Front Public Health*. 2021;9:713487.
<https://doi.org/10.3389/fpubh.2021.713487>
2. Borku Uysal B, Islamoglu MS, Koc S, Karadag M, Dokur M. Most notable 100 articles of COVID-19: an Altmetric study based on bibliometric analysis. *Ir. J. Med. Sci.* 2021;190:1335–1341
<https://doi.org/10.1007/s11845-020-02460-8>
3. Casino G, Prados-Bo A, Bosch-Llonch F. Social impact of the clinical trials on COVID-19-related vaccines and other drugs [abstract]. 15th Congress of the European Association for Clinical Pharmacology and Therapeutics; Athens (Greece) 25-28 June 2022. Published in: *Eur J Clin Pharmacol*. 2022;78:S52-3.
<https://link.springer.com/content/pdf/10.1007/s00228-022-03333-y.pdf>.
4. Logunov DY, Dolzhikova IV, Shcheblyakov DV, *et al.* Safety and efficacy of an rAd26 and rAd5 vector-based heterologous prime-boost COVID-19 vaccine: an interim analysis of a randomised controlled phase 3 trial in Russia. *Lancet*. 2021; 397:671–681.
[https://doi.org/10.1016/s0140-6736\(21\)00234-8](https://doi.org/10.1016/s0140-6736(21)00234-8)
5. Sumathipala A, Siribaddana S, Patel V. Under-representation of developing countries in the research literature: ethical issues arising from a survey of five leading medical journals. *BMC Med Ethics*. 2004;5:E5.
<https://doi.org/10.1186/1472-6939-5-5>
6. Casino G, Rius R, Cobo E. National citation patterns of *NEJM*, *The Lancet*, *JAMA* and *The BMJ* in the lay press: a quantitative content analysis. *BMJ Open*. 2017;7, e018705.
<https://doi.org/10.1136/bmjopen-2017-018705>