

What are the main areas of research on COVID-19?

The pandemic caused by COVID-19 has been an unprecedented global crisis. To the health crisis must be added an economic and social crisis. This virus is totally new, as is the situation caused by it, with home confinements, closures of bars and restaurants, of commercial premises, air restrictions or limitations on mobility that seek to reduce the spread of the disease.¹ By the end of October 2020, more than 40 million people had been infected worldwide and more than 1 million had died, according to data provided by Johns Hopkins University (Johns Hopkins University constantly updates the number of people infected and deceased by COVID-19 in all countries of the world, <https://coronavirus.jhu.edu/map.html>).

However, there are still many areas to be explored and many unknowns to be resolved. The COVID-19 has caused a health crisis and affected the health of citizens, and has produced economic, psychological, educational and legal consequences. The areas involved are many and there is still much to be known.

Many experts and researchers are seeking, first of all, a treatment to reduce the symptoms of the virus or a vaccine to combat the new coronavirus SARS-CoV-2.² In addition, they are trying to study the current behaviour of society, the consequences that this virus is having on citizens³ and the impact that it has on health,⁴ on education,⁵ on the economy⁶ or on politics,⁷ among other topics.

Researchers and professionals from different areas have sought—and continue to seek—solutions to this global crisis in which we find ourselves. Proof of this is the infinite number of works that have been published in relation to the COVID-19. This work aims to show the main areas of research that are being published on this subject, the universities that stand out and their most relevant authors. This will allow a better understanding of the current state of publications in the world of COVID-19 research.

The main database of academic papers, Web of Science (WoS), was used to find out how many papers had been published up to the date on which the search took place, 24 October 2020. To do this, it was filtered by the word 'Covid' in the 'subject' with the idea of knowing how many papers had been published to date, with a total of 43 953 papers. Among the 10 topic areas with the most publications, all are related to the area of health sciences. Of the total number of published papers, 5585 are related to the area of Medicine General Internal, which is the subject area with the highest number of publications, followed by Public Environmental Occupational Health with 3216 and Surgery with 2150 (figure 1).

We have to go to position 15 to find a subject not exclusively related to the area of health sciences, Environmental Sciences, and up to position 40 to find a completely different area, Education, with 406 papers published in WoS. Economics is in position 42 with 365 papers and Law in position 45 with 347 papers.

This shows that the main concern is research in the area of health sciences, specifically with public health and medicine. However, this is a global crisis that also requires the study of inter-related aspects of the disease from other areas such as Education, Economics or Law.

If we focus on the universities with the greatest number of publications, the University of London, Harvard University and the University of California System occupy the first three positions, with a total of 1363, 1357 and 987 works published, respectively (table 1).

As part of the search, an individualised review of the published works of some of these universities has also been carried out. The papers from Harvard University are the ones that research the most about the COVID-19 vaccine, along with those from the University of California System. Both institutions account for 50 publications related to the vaccine. Harvard University also has the largest number of publications related to psychology, psychiatry, oncology and cardiovascular disease, while the University of London publishes the most on surgery.

If we analyse the top 10 universities with the greatest number of publications related to COVID-19, half of them have as their main area of published work those related to Medicine General Internal (table 1). In other universities, other areas such as Infectious Diseases, Critical Care Medicine, Oncology or Public Environmental Occupational Health are in first position, although in all of them Medicine General Internal also follows closely, showing that a large part of the work is

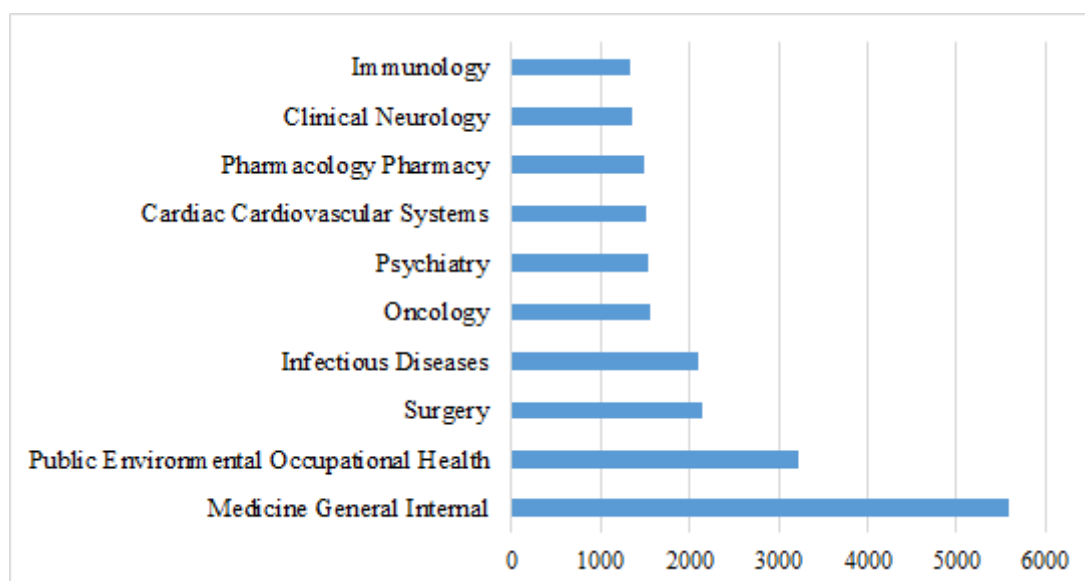


Figure 1 Main areas published on COVID-19.

Table 1 Universities, areas and most outstanding researchers on COVID-19

University	Total works published	Main topic area	Researcher with most publications (n)
University of London	1363	Medicine General Internal	Zumla A (25)
Harvard University	1357	Medicine General Internal	Mehra MR (17)
University of California System	987	Medicine General Internal	Mahmud E (11)
Huazhong University of Science and Technology	739	Infectious Diseases	Hu Y (45)
Institut national de la santé et de la recherche médicale (Inserm)	604	Critical Care Medicine	Lescure FX/Yazdanpanah Y (13)
University of Toronto	578	Medicine General Internal	Slutsky AS (10)
Assistance Publique-Hôpitaux de Paris (AP-HP)	540	Critical Care Medicine	Azoulay E (14)
Johns Hopkins University	534	Public Environmental Occupational Health	Latkin CA (13)
University of Texas System	517	Oncology	Reiter RJ (9)
University of Oxford	466	Medicine General Internal	Greenhalgh T (14)

Source: Own elaboration.

in this area (exactly 5585 of the 43953 papers published to date).

In these universities there are also some researchers who stand out in terms of the total number of publications related to COVID-19. This is the case of Zumla A, from the University of London with a total of 25, Mehra MR, from Harvard University with 17 publications or Hu Y, from Huazhong University of Science and Technology with a total of 45.

On the other hand, the journals that have published the most work related to COVID-19 have been analysed, standing out above all *BMJ British Medical Journal*, with 943 articles, followed by *Journal of Medical Virology*, with 550 publications (figure 2). It should be noted that all the journals in the top positions are related to medicine and health.

In conclusion, the pandemic caused by the COVID-19 has produced constant research on this subject with a large number of published works. As of 24 October 2020, a total of 43953 papers had been published in WoS.

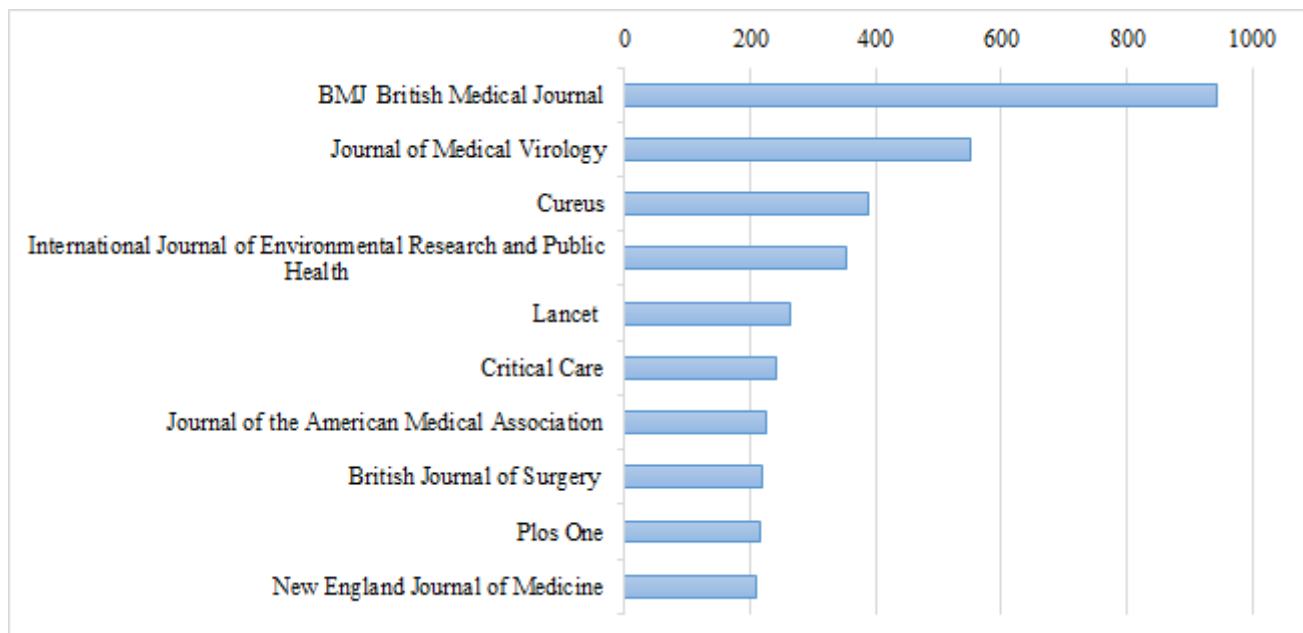
This work is intended to serve as a compilation of the main research topics on the COVID-19, where it has been demonstrated that the main concern is research in the area of health sciences, specifically public health and medicine. This article will provide a closer look at the current reality of research on the COVID-19.

BMJ British Medical Journal is the academic journal with the largest number of published articles related to COVID-19 with a total of 943. The majority are included in General Internal Medicine (5585 papers), followed by Public

Environmental Occupational Health with 3216 papers and Surgery with 2150 papers. To find a totally different area to health sciences it is necessary to move to position 40 (Education), 42 (Economics) or 45 (Law). The University of London has the largest number of publications, with 1363 works, followed by Harvard University (1357 publications) and the University of California System (987 publications).

Among the limitations of this work is the continuous updating that takes place in the WoS database, although it is quite representative to date, and it is very likely that future publication of works will follow the same trend as the current one.

It should also be noted that the large number of published articles is due, in addition to the recent interest in the topic, to the brevity of many of them, which

**Figure 2** Journals with a greater number of publications related to COVID-19.

show preliminary findings or present a short article. This is due to the need for journals to publish on COVID-19, with plenty of Call for papers, and the need for researchers to communicate any possible findings or knowledge.

Javier Cifuentes-Faura 

University of Murcia, Murcia, Spain

Correspondence to Mr Javier Cifuentes-Faura, University of Murcia, Murcia 30100, Spain; javier.cifuentes@um.es

Contributors JCF made all the article.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.

This article is made freely available for use in accordance with BMJ's website terms and conditions for the duration of the covid-19 pandemic or until otherwise determined by BMJ. You may use, download and print the article for any lawful, non-commercial purpose (including text and data mining) provided that all copyright notices and trade marks are retained.

© Author(s) (or their employer(s)) 2021. No commercial re-use. See rights and permissions. Published by BMJ.



To cite Cifuentes-Faura J. *Postgrad Med J* Epub ahead of print: [please include Day Month Year]. doi:10.1136/postgradmedj-2021-140156

Accepted 12 April 2021

Postgrad Med J 2021;0:1–3.

doi:10.1136/postgradmedj-2021-140156

ORCID iD

Javier Cifuentes-Faura <http://orcid.org/0000-0001-6763-8525>

REFERENCES

- 1 Cifuentes-Faura J. Analysis of containment measures and economic policies arising from COVID-19 in the European Union. *International Review of Applied Economics* 2021;5:242–55.
- 2 Lurie N, Saville M, Hatchett R, *et al.* Developing Covid-19 vaccines at pandemic speed. *N Engl J Med* 2020;382:1969–73.
- 3 Bonaccorsi G, Pierri F, Cinelli M, *et al.* Economic and social consequences of human mobility restrictions under COVID-19. *Proc Natl Acad Sci U S A* 2020;117:15530–5.
- 4 Khan KS, Mamun MA, Griffiths MD, *et al.* The mental health impact of the COVID-19 pandemic across different cohorts. *Int J Ment Health Addict* 2020:1–7.
- 5 González T, de la Rubia MA, Hincz KP, *et al.* Influence of COVID-19 confinement in students' performance in higher education. *PLoS ONE* 2020;2020:e0239490.
- 6 Nicola M, Alsaifi Z, Sohrabi C, *et al.* The socio-economic implications of the coronavirus pandemic (COVID-19): a review. *Int J Surg* 2020;78:185–93.
- 7 Greer SL, King EJ, da Fonseca EM, *et al.* The comparative politics of COVID-19: the need to understand government responses. *Glob Public Health* 2020;15:1413–6.