



COMMENT

The COVID-19 impact on the scientific production on the 25 main death causes according to world region



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Received 12 May 2021; accepted 26 May 2021

Available online 16 June 2021

KEY WORDS

SARS-CoV-2;
Coronavirus Disease (COVID)-19;
Pandemic;
Health-Related Problems;
Paperdemic

The Coronavirus Disease (COVID)–19, caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), affected millions of people and caused the deaths of thousands of individuals worldwide. In this chaotic scenario, the scientific community turned to this topic, aiming to discover diagnostic strategies, treatments, and vaccines. Until April 2021, there were more than 130,000 articles related to the COVID-19 in the PubMed Database. Even though the COVID-19 is an emerging disease, several other health-related problems (HRPs) are responsible for determining global health.¹ Unfortunately, due to the COVID-19 “paperdemic”²; several HRP were less published in 2020.

In this scenario, we described how the COVID-19 impacted on other HRP publications comparing the numbers of publications between 2020 and 2019 for the 25 Top Causes of Death [World in Data] (Fig. 1). The data search was performed using the follow descriptors: (((health related problems) NOT (coronavirus disease-19 OR coronavirus disease OR coronavirus OR COVID-19 OR COVID19 OR SARS-CoV-2 OR Severe acute respiratory syndrome coronavirus 2))) AND (“1970/12/31”[Date - Publication]: “2020/12/31”[Date - Publication])). The HRP considered as descriptor were the Top 25 Causes of Death by the “Our World in Data”³. In addition, the Top Causes of Deaths according to world area (North America, South America, Europe, Africa, Asia and Oceania)^{3,4} were discussed.

We observed that most HRP, such as cardiovascular disease respiratory infection, lower respiratory disease, dementia, digestive disease, neonatal disorders, diabetes mellitus, liver disease, road injury, homicide, meningitis, nutritional deficiency, protein-energy malnutrition, alcohol use disorder and drug use disorder showed a decreased number of publications in 2020 when compared to 2019, whereas

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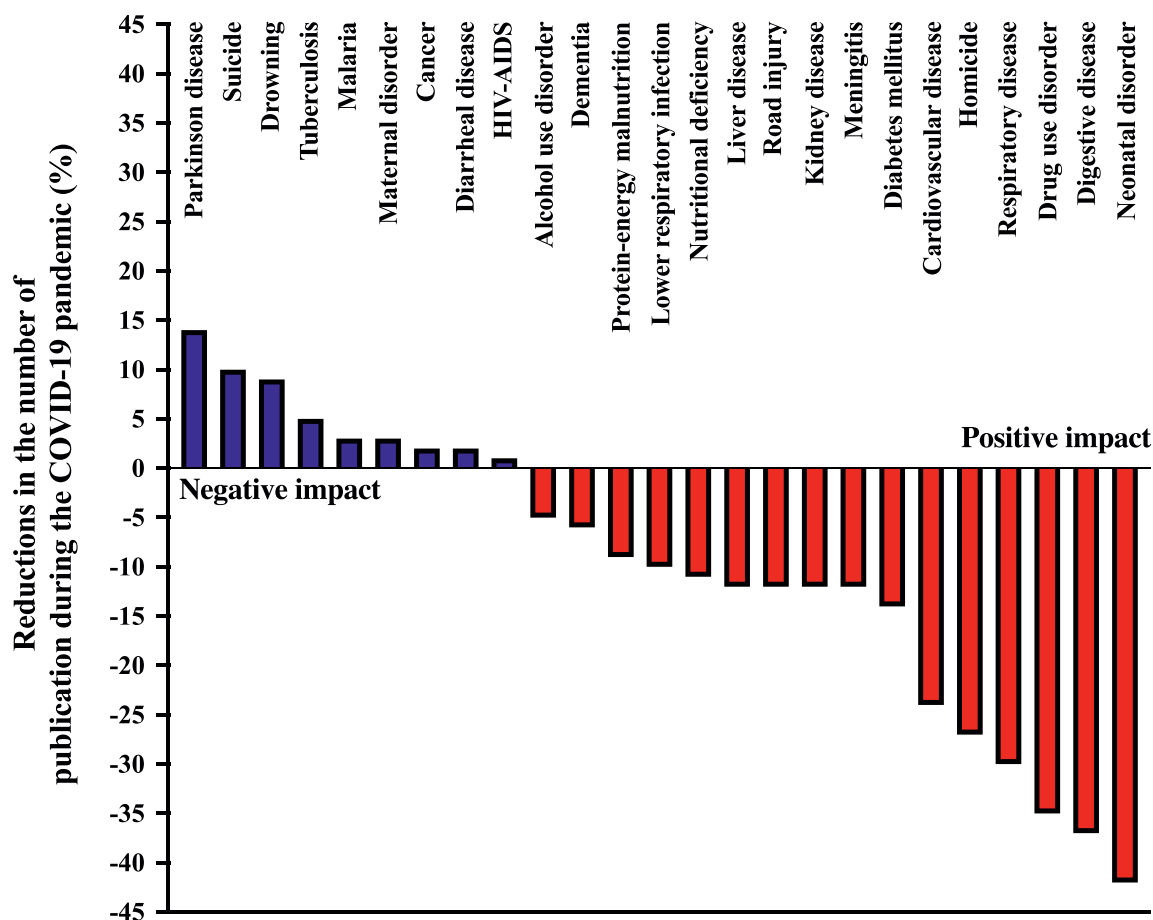


Fig. 1 The COVID-19 Impact on the Scientific Production on the 25 Main Death Causes according to World In Data. Available from: <https://ourworldindata.org/causes-of-death>.

mental disorders, drowning, Parkinson's disease, malaria, suicide, HIV/AIDS, tuberculosis, diarrheal disease and cancer had more publications in 2020 than in 2019. Even though these 25 HRP are the deadliest worldwide, the decrease in their scientific production may not have affected equally all the regions, since the top 10 deadliest HRP in each region are different from each other.^{3,4}

It is clear that in highly developed regions, such as North America, Europe, Oceania and Asia, especially China, and even in developing regions, such as South America, especially in Brazil, the impact of the lower publication of cardiovascular disease in 2020 is worrisome, since this is the disease with the highest mortality rate in these regions. All these regions have similar causes of mortality, encompassing cancer, dementia, diabetes mellitus and liver disease, and the decrease in publications about these topics might negatively influence the treatment and prevention of these diseases.

Nevertheless, in underdeveloped regions, like most of the African continent, the causes of mortality are different from those found in the aforementioned regions. For this reason, the decreased publication regarding cardiovascular disease or diabetes mellitus might not have as much impact as the decrease in publications regarding neonatal disorders or HIV/AIDS, which are much more common causes of mortality in these regions. However, publications of only COVID-19 centered research may take an even more brutal toll on this

population; hence their main sources of mortality were not focused even before the pandemic, not favoring targeted public health interventions.

Not only has the COVID-19 had a great impact on global health, but also on the scientific community, which has always been able to adapt, seeking efficiency and accuracy. As an emerging disease, several researchers rushed to understand this novel virus, disseminating a great number of papers, which may have even been characterized as a "hype" across the scientific world. Since the novel virus is responsible for more than 160 million confirmed cases and more than three million deaths worldwide, the need for fast information about it is crucial. It is clear that COVID-19 publications have changed the basic structures and focus of publications. For instance, COVID-19 papers underwent review faster than other subjects, culminating in a high rate of retracted publications and a high rate of preprint publications has also been reported. Curiously, before the pandemic, only 2% of the biomedical studies were related to virology whereas during the pandemic, around 10–20% of biomedical papers are COVID-19-related.^{5–8} In December 2019 there were thousands of COVID-19 papers published, and many uploaded to preprint, prioritizing rapid dissemination over peer-to-peer review. Undoubtedly, research on a novel disease epidemiology, mechanism of infection, treatment, prevention and origin are of the

utmost importance, for better knowledge and, consequently, the ability to decrease the number of deaths and confirmed cases. However, most non-COVID-19 research was suspended.⁸

Out of the 25 conditions with highest mortality rate, only nine had more publications in 2020 when compared to 2019. Even though new information regarding the COVID-19 is necessary to attenuate the pandemic, it is not prudent to focus only on the COVID-19. For example, papers related to cardiovascular disease, which is the condition with the highest mortality rate in the world, decreased 24%, which could prevent further development of its understanding, especially in highly developed and in developing regions. Also, underdeveloped regions might suffer even more from the decreased number of publications regarding their most common causes of mortality, which were not the focus of studies even before the pandemic, thus taking an even worse toll.

Thus, the COVID-19 deserves, indeed, special attention by the scientific community, however, several other diseases might be neglected, which can also compromise the health worldwide and bring as many deaths as the COVID-19.

Declarations

Funding: Not applicable.

Conflicts of interest/competing interests: Not applicable.

Ethics approval: Not applicable.

Consent to participate: Not applicable.

Consent for publication: The authors have approved the manuscript and agreed with its submission.

Availability of data and material: Not applicable.

Code availability: Not applicable.

Authors' contributions: [FEV and MNB] Data collection. [CVCP and FALM] Data validation. The authors wrote the manuscript, approved it and agreed with its submission to the journal.

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