Early scientific response to COVID-19 epidemic: a scientometric perspective

Kadjo Yves Cedric Adja

D Golinelli[1], AG Nuzzolese[2], E Boetto[1], F Rallo[1], M Greco[1], M Degli Esposti[3], MP Fantini[1]
[1]Department of Biomedical and Neuromotor Sciences, University of Bologna, Bologna, Italy
[2]STLab, ISTC-CNR, Rome, Italy
[3]Department of Engineering, University of Bologna, Bologna, Italy
Contact: adjayvescedric@gmail.com

Background:
The recent COVID-19 epidemic is showing how the response of the scientific literature is fundamental in the first days following the onset of a new epidemic. Quantifying which studies have a greatest impact can help researchers and policymakers in controlling the epidemic. The aim of this study is to describe the early scientific production in response to the COVID-19 epidemic through a scientometric analysis.
Methods:
The study consisted of: 1) review of the scientific literature produced in the 30 days since the first paper related to COVID-19 has been published on Pubmed; 2) Identification of papers' Digital Object Identifiers (DOI) and analysis of related metrics with the construction of a 'Computed Impact Score' (CIS) that represents a unifying score over heterogeneous bibliometric indicators. The CIS takes into account all the bibliometric indicators both traditional (i.e. counting of citations) and alternative (i.e. altmetrics). In this study we use the altmetrics provided by Plum Analytics (PlumX). All bibliometric indicators for the selected papers have been collected by using their corresponding DOIs as the key for querying Scopus API, which integrates PlumX. On top of those indicators we compute the CIS. The papers with higher CIS are discussed and presented.
Results:
239 papers have been included in the study. A threshold for CIS of t = 1.04 (i.e.95% quantile) allowed us to record 8 papers as potentially impactful. The 8 papers are: 6 case reports, 1 methodological study, 1 editorial. First authors come from China (n = 6), USA (n = 1) and Germany (n = 1). The main topics are: case/s description (n = 5), outbreak investigation (n = 2) and 1 genomic study.
Conclusions:
The early response of the scientific literature during an epidemic does not follow a pre-established pattern. Tracing the traditional and non-traditional metrics measures of papers can help to understand and evaluate the impact of literature on the scientific community and general population.
Key messages:
- The dynamic of the scientific community represents an important aspect of the early response to the onset of a new epidemic, which must be studied also to increase systems' preparedness.
- In a connected digital world, tracing metrics measures of scientific papers can identify those with the greatest impact and help professionals to correctly inform the population.