

# The knowledge validation process: the fundamental value of the scientific journal

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This pandemic has left us great lessons regarding scientific literature and the critical evaluation of knowledge<sup>1,2</sup>. Although important journals that are rigorous when validating knowledge, had resounding errors, the ultimate lesson is that peer review is the best system, and until now the only one, that can ensure that a research work has been carried following scientific requirements, and as it is usually stated, it is the least worst scientific work evaluation systems when compared to others<sup>3-5</sup>. In medicine, this is critical given the way it affects human lives, but one should never expect this process to be error-free; JAMA journal had an editorial with a very telling title in this regard: "To err is human and to correct it is divine"<sup>6</sup>.

Nor should one fall into the mistake of calling for extreme and antagonistic measures, for example, some have proposed eliminating the pre-printed bases and others the elimination of scientific journals. The truth is that the search for a transparent, rigorous and open science has led to the development of new strategies and the coexistence of various scientific publication models<sup>7</sup>:

- Faced with the need for transparency, several publishers are demanding that researchers make source databases available<sup>8</sup>
  - Faced with the need for open science, there are already a large number of open access journals<sup>9</sup> and practically all publishers based on subscription systems offer the possibility of paying for open access publications, this leaves the possibility for researchers who do not have the resources to pay for the high costs of open access, and continue publishing in journals where the subscriber covers the publication costs<sup>7,10</sup>.
- Faced with the need for rapid dissemination of results, there are pre-printed bases that do not affect the publication of peer-reviewed journals, likewise their potential issues do not play-down their advantages for the progress of science and their wide and open discussion<sup>11,12</sup>.
  - Faced with the need for post-publication evaluation, there is already the possibility of commenting on PubMed and systematic reviews, on the other hand, meta-analysis can highlight the design problems and biases that studies may have<sup>11</sup>.

In other words, the scientific publication system has been able to reinvent and restructure itself and open new possibilities for critical review and evaluation of knowledge. Thus it is possible to conclude that the problem is not in editorial process and knowledge evaluation systems with its ability to find biases and errors or fraud, rather what is critical is the ability of the user to review the large amount of information and his/her ability to critically analyze it<sup>2</sup>. In fact, what the current infodemic has done is reassess the role of recognizable opinion leaders, allow the academia to re-acquire its value and reaffirm the need to clearly identify and recognize the process of validation of scientific knowledge, where indexed scientific journals act as cornerstones. This is how this pandemic becomes a turning point for what had been happening with information management at a social level, and in general terms allows for the re-recognition of the value of academic institutions.

When it comes to medicine, the real problem is the training in critical thinking skills during the undergraduate program and its reinforcement during clinical postgraduate studies. These competencies should not be exclusive to medical re-

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searchers, but be essential in the training of any doctor, this is what allows for the best clinical decisions. Any doctor must have a comprehensive awareness of creation and **validation** of scientific knowledge process<sup>13,14</sup>.

The real intrinsic value of the knowledge validation process (which at the same time must be recognized as also a social ritual) which occurs through the submission, review, acceptance and publication in an indexed scientific journal, is that this scientific knowledge does not end with the publication, as it is then reviewed, reevaluated, restructured, resigned, resolved or contradictions may appear. It is not sold to the highest bidder nor does it seek profit or follow political, social, or economic needs, because at the end of the day it is intangible knowledge and creates a contrast empirical knowledge, common sense, pseudoscience or quackery. Therefore, the system must continue acting in its capacity as a social system that validates knowledge, a continuous and unfinished process, even when published.

This supplement presents the second edition of the consensus for COVID-19 management recommendations, and recommendations are updated and revised<sup>15–18</sup>. This process that stands out internationally when compared to many other published guides because it includes the essence of the scientific process: discussion, critical analysis, debate, re-composition with new data and no ideological bias, because its ultimate purpose is to save human lives with the best scientific evidence available<sup>19</sup>.

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