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Editorial

The crisis in science, the editors' fault, and the role of emerging journals

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It has been increasingly recognized by universities, journals' editors and, probably in a less degree, by publishers, that there is a crisis in science[1,2]. This is so important that, the Editor-in-Chief of Lancet, Richard Horton, has recently stated that "much of the scientific literature, perhaps half, may simply be untrue[1]."

There are many issues surrounding this matter, including clear research misconduct[1,2], but the cornerstone of the crisis is the quality of the research that has been currently published, and this comprises poor clarity in methods, notoriously biased results, and obviously invalid conclusions[1-3].

It is well known that our scientific culture privileges quantity over quality, but it seems that this practice ultimately resulted in an "endemicity of bad research behavior"[1]. It seems that this culture has been developed at the same pace of the widespread of the science. Science is no longer for a few. The increasing competition among research institutions, mostly universities, and researchers, for financial support for their work, among other things, has led the system to develop an objective way to distinguish who should be encouraged to go further through financial and other specific kinds of support. Indeed, it is unrealistic to think about research nowadays without metrics. So far, the most objective (I do not mean the best) way to assess science is quantitatively. Not only by the number of publications, but also through a quantification of the impact of the research by the *h*-index, for example. Both are necessary but both have flaws. Moreover, what is the price scientists should pay for having the combination of a reasonable number of publications and, possibly, at least statistically, a greater number of citations? I think no one knows exactly, but what we are seeing, as underscored by editors of core scientific journals, is that the price has been a low quality research.

Obviously, researchers publish studies not only for more financial support, prestige or influence, and we are not talking about only publishing "revolutionary" scientific findings. The "nature does not make leaps". Neither does science. The great "discoveries" are, in fact, the pinnacle of a long road of many smaller findings that allowed the progress of not only science *per se* but ultimately human knowledge as well. So, we need research. All kinds of research. In fact, we are talking about quality. Transparency and reproducibility are the mainstream of good science[2]. It is not about how long you have gone, but about how you have gone there. And even further, have you really gone there? From a slightly distinct point of view or, in other words, it seems that, at a given moment, the major aim of scientific production was forgotten and "publication philosophy" became utilitarian and certainly distorted.

However, where is the editors' responsibility? Which are their faults? As stated in a recent editorial from Nature, "eradicating misconduct is difficult. It demands cultural change, education and a system of checks and balances[4]." Nonetheless, a more rigorous assessment of the quality of the basic structure of a scientific investigation, particularly the methods, which are the tools used to reach a given conclusion, has been somewhat abandoned by those who choose what should and should not be published. Furthermore, even if reasonably described, there are many misleading conclusions raised from arguable results that have not been thoughtfully addressed by peer

reviewers, which are commonly not fully prepared for the evaluation of research procedures, including epidemiological and statistical methods. The recognition of the problem is quite important but it is still not clear how to circumvent such situation. As said by Richard Horton, "The good news is that science is beginning to take some of its worst failings very seriously. The bad news is that nobody is ready to take the first step to clean up the system[1]."

Finally, what is the role of new or emerging scientific journals, such as *Clinical and Biomedical Research*, which aim for recognition and want to publish and be cited? Certainly, it is advisable not to repeat past errors, i.e. these journals should not publish bad quality research. However, at this point, if poor science has been published in major journals, what one could expect to be published in smaller, new and/or emerging journals? The answer is easy: bad science does not mean low impact results or results that are too far from "revolutionary". It is the role of emerging journals to educate and uphold researchers to aspire for and to preserve the main structure of the scientific method, clarity and reproducibility, which will determine valid results and make clear the limitations of the investigations. Even for simple research questions, if the bases are not conserved, the results, regardless of their impact in science and society, will be untrue, and this may be a silent way to put forward the crisis in science.

REFERENCES

1. Horton R. Offline: What is the point of scientific publishing? *Lancet*. 2015;385(9974):1166. http://dx.doi.org/10.1016/S0140-6736(15)60609-2.
2. Nosek BA, Alter G, Banks GC, Borsboom D, Bowman SD, Breckler SJ, et al. Promoting an open research culture. *Science*. 2015;348(6242):1422-5. http://dx.doi.org/10.1126/science.aab2374. PMid:26113702.
3. Munro CL, Savel RH. Publish (high-quality evidence for clinical practice) or (patients may) perish. *Am J Crit Care*. 2013;22(3):182-4. http://dx.doi.org/10.4037/ajcc2013294. PMid:23635926.
4. Publish or perish: universities should release reports to show what they are doing to tackle misconduct — and funders should help them to do so effectively. [editorial]. *Nature*. 2015;521(7552):259. http://dx.doi.org/10.1038/467252a. PMid:25993920.