

Taking peer review seriously

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Comment on: **D Fisher & N Parisis**

See reply: **D Fisher & N Parisis**

The peer-review system for validating and judging the quality of scientific discoveries has come under attack during the past years. Daniel Fisher and Nikolaos Parisis reckoned that “publishing has become the most discouraging and frustrating part of research” [1] because the amount of data needed to write a publishable paper has drastically increased “during the past decades” owing to increasing demands by reviewers and editors. Ultimately, they state, this hampers scientific advance and harms the career options of young scientists. In his comment on their essay, Haitham Sobhy takes the same line and criticizes that the focus on journal impact factor (JIF) and number of citations to measure scientific quality may ruin or at least negatively influence the career of young researchers [2]. These are valid points; however, the criticism of the process of reviewing scientific results and hypotheses ignores important rules of science.

The natural and life sciences are and have to be conservative disciplines. They need a solid fundament on which to base new research and to check any new fortuitous hypotheses thrown into the arena. According to Karl Popper, the natural and life sciences are defensive [3], that is, it must be difficult to publish new findings because they need to be critically tested

and discussed by the scientific community. Of course, errors and mistakes may occur in this process and young researchers with little experience have obviously more problems in getting published. This does not necessarily mean that their data are less reliable; they have not yet sufficiently proven their reliability based on earlier publications. Uncritical openness for “new ideas” would therefore destroy scientific credibility and uncontrolled communication of results or pseudo-results on the Internet would worsen the situation. This is the situation that we are facing at the moment with political and social journalism where facts and opinion are increasingly indistinguishable.

The situation could improve if the system of publishing and research assessment implemented the recommendations of the San Francisco Declaration of Research Assessment (DORA: www.ascb.org/dora). Reducing the influence of bibliometric measures, notably the JIF and the h-index, would relieve the pressure especially on young scientists in their struggle to obtain grants and employment. Nevertheless, this can only succeed if the quality of reviews improved as well.

What, then, is the weak point of the peer-review system? Why does it force colleagues to criticize it? Peer review has produced and is producing a large number of excellent scientific articles, which form the basis for advances in medical and

agricultural research which have been improving human lives and well-being. Again, errors happen and many colleagues propose to change or to “modernize” the peer-review system to minimize or eliminate such errors. I am not going to summarize these suggestions, but suffice to say that changing the system would not change anything if we do not improve the weak point: the reviewer. There is an obvious way to achieve this goal: students should be taught at judging someone else’s data and writing reviews at the university early in their curriculum. With this background, academic scientists would be more efficient and fairer in reviewing papers and grant proposals. Moreover, reviewers should be able to claim credit for their work and should be judged by the quality of their reviews, which would help to improve the review process. Eventually, this might convince scientists to become “professional” reviewers who could be employed or otherwise recruited by journals such that a team of experienced academic and professional reviewers would handle a manuscript—without changing the peer-review system.

References

1. Fisher D, Parisis N (2015) *EMBO Rep* 16: 1588–1591
2. Sobhy H (2016) *EMBO Rep* 17: 473
3. Popper K (1992) *The Logic of Scientific Discovery*. New York: Routledge