Sosa Henríquez M[1,2], Gómez de Tejada Romero MJ[1,3]

1 Universidad de Las Palmas de Gran Canaria - Instituto Universitario de Investigaciones Biomédicas y Sanitarias. Grupo de Investigación en Osteoporosis y Metabolismo Mineral - Las Palmas de Gran Canaria (España)

2 Hospital Universitario Insular - Unidad Metabólica Ósea - Las Palmas de Gran Canaria (España)

3 Departamento de Medicina - Universidad de Sevilla - Sevilla (España)

A proposal for reorganizing the world of scientific publications which would save Spain millions of euros

DOI: http://dx.doi.org/10.4321/S1889-836X2018000400007

Correspondence: Manuel Sosa Henríquez - c/Espronceda, 2 - 35005 Las Palmas de Gran Canaria (Spain)
e-mail: manuel.sosa@ulpgc.es

1. What was the reason for the scientific publications? How everything changed with Eugene Garfield

At the beginning of the twentieth century few scientific journals existed and their range of diffusion was limited. In the field of medicine, two publications stood out: in the United States, The New England Journal of Medicine, which was established in 1812, and The Lancet in Europe, which dates back to 1823. The main objective of the authors, most of whom were researchers, was to report important findings to their scientific community. These findings were often expected, as, for example, with Watson and Crick's publication of the breakthrough in the structure of DNA in Nature[1] or Fleming's discovery of penicillin[2], milestones in medicine that became known through their publication as scientific articles or simply as a letter, as in the case of the discovery of DNA[1].

More than 30 years ago, everything changed. Eugene Garfield's impact factor for scientific journals[3] was initially conceived as an index to assess the quality of journals and to provide orientation for librarians (the essence of the impact factor is to list the frequency with which a given article is cited in other quality journals as well as the number of articles that the magazine publishes)[4]. The impact factor suffered a malevolent distortion in its use and, by extension, began to be used as an index of quality of the scientific articles published in the journals with an impact factor. From that point on, it conditioned the professional attitude of publishers, scientific journals, researchers and even of research institutes, universities and ministries, a phenomenon that has been recognized and lately called into question[5].

The impact factor immediately led to the division of journals into the "first category" ones which were those included in the Journal of Citation Reports (JCR), and all the others, which were not and, therefore, did not have this impact factor. In turn, the journals included in JCR were classified in quartile rankings, where the best journals were those at the top of this list. This fact conditioned the development of a chain, whose assertions, erroneous, in our opinion, carry on until our present day: journals with the greatest impact are best, the best articles are published in the most impacting journals. So, that is why they are the best. The best researchers, those who produce the highest quality articles, publish them in the journals with the greatest impact. So, the best way to assess the quality of a research study (of its researchers, its research institutes, its hospitals, etc.) is assessing the impact factor of its publications (which is, really, that of the journals where they are published). For this reason, depending on the impact factor, grants and subsidies are bestowed for research, scholarships, research appointments, and even assessments by the evaluation agencies for the accreditation of university professors, professors and holders. Everything revolves around

the impact factor and the articles published by the journals that have it. If you have a high cumulative impact factor, you are good at everything. If you do not have it, you do not deserve anything.

2. What is currently the reason for scientific publications?

Disentangle ourselves or accept reality without falsehoods. The main raison d`etre, nowadays, of scientific publications is not to transmit some knowledge to the scientific community. It is true that many of them fulfill this function, but in our opinion, this is secondary and if it were to do so, many journals would be left out. Researcher today more than ever needs to "publish or die"[6-8]. They have entered a vortex from which it is impossible to escape: you need to publish to progress professionally (chairs, entitlements, service heads), to improve our economic conditions (a tenure bonus), to be able to maintain work (scholarships, research grants) and, why not say it, to obtain recognition in the scientific community, which, in addition to improving our *curriculum vitae*, stroke our ego, since a significant number of scientific publications in journals with a high impact factor produce recognition which can lead to invitations to congresses, scientific meetings, advice on new research projects among other perks. Scientific publication has now become a means to achieve other things, to meet needs and self-promotion, whether personal or collective.

3. The business that has developed around scientific publications. Internet came and "with it came the scandal"

With the advent of the Internet, in the final years of the past century, there was a real revolution in scientific publications. Authors could email their articles and then specific editing programs made it possible to significantly shorten the publication process. In addition, the journals could already publish their articles "online." Little by little they would all add a digital edition to their traditional paper format, which still exists today, at least in the most prestigious ones: The New England Journal of Medicine, The Lancet, Nature, Science, Annals of Internal Medicine, The American Journal of Medicine, just to name a few in the field of Internal Medicine. The same has happened in our country with *Revista Clínica Española* or *Medicina Clínica*. But along with these "classic" magazines, a whole new world of publications has been developed with two common elements: they are all digital (that is, they are only published "online", they do not have a paper version). Furthermore, they have adhered to the open access format. This means that readers have full, free access to articles published by journals that have joined this movement. Some of these magazines in this new format have garnered remarkable prestige, displacing even classic journals with "pedigree and breeding". Thus, for example, PLOS One has attained a significant impact factor that places it in the first quartile in internal medicine. But now the maintenance of this method of publishing scientific articles is supported by researchers, **who have to pay** to have their articles published.

Indeed, we have reached a point in this world of scientific publications in which, if we want to publish an article we must choose between a "classic" magazine that is published in traditional format on paper and "online" that does not charge authors, but that charges access to readers, either by personal subscriptions or institutions, or a magazine only "online" in open access format, to which all readers can freely access, but as the author you must pay a significant sum of money. We have gone from "publish or perish" to "pay to publish" (and if not, perish anyway).

4. The daily invitations to publish in these magazines. The fraud that has been generated around them. And who foots the bill?

All those of us who have published an article in a journal with impact factor in the past 5 years are continuously receiving emails from new journals that have just been created. These messages all announce that "they frankly admire our previous article" (from which they obtained our email contact address), they invite us to send them an update or a new version of it. Finally, they inform us that the publication process will be very short, even in less than a month in some invitations with a cost that is never less than € 1,500. Sometimes, the invitation generously includes the invitation to join the journal's editorial committee, which is usually not indexed in Scopus, nor in Google Scholar and much less in JCR, although that there are some exceptions in this regard. Some of these journals try to deceive their potential clients by calculating their own "impact factor", which is not the one obtained in JCR, because it is not included in it, but calculating themselves from Google Scholar, explained with an asterisk and almost illegible fine print, at the end.

But as this matter is all about publishing at any cost (as it were), the end result is that the business that all these journals have created is financed by researchers, immersed in their vertiginous circle of having to publish in order to compete. Most of this money comes from public bodies: universities, research institutes, regional health services, hospitals, foundations, etc., who have had to include in their budgets new items that include the payment of research-generated articles. In a tortuous way, public agencies and health institutions are keeping all these scientific journals and the publishers that are behind this business with the tax money, either by paying for the articles of their researchers, or paying journal subscriptions for their libraries, which are not exactly inexpensive[8]. In one way or another, publishers always win because their business will always be financed by public funds.

In other words, public agencies fund researchers and the research they produce, either directly or as scholarships or grants. To publish the result of this research, you must pay a magazine, which either charges for doing it and then

allows it to be read in open format (open access) or does not charge to publish it but does so in order to read it in subscription form. In one way or another, all public bodies and researchers are working for publishers.

Finally, we must not forget that case of fraud have occasionally been detected. These are non-existent journals, as the investigators afterwards verify the payment and get nothing in return.

A proposal that would save Spain millions of euros

We propose the creation of a Spanish scientific journal, which publishes its scientific articles in Spanish and English exclusively in an ecologically sound digital version constituted by an editorial team of recognized prestige. This would entail the collaboration of qualified and accredited reviewers, for which they could be economically rewarded. This editorial team would have to ensure the veracity and quality of the articles published in order to acquire a scientific prestige from the day one.

The journal would be completely free for authors and readers. That is, the publication of the articles and their access once published would be totally free. Thus, the journal should be publicly financed and edited by a prestigious entity, be it a Ministry or a Research Institute.

The creation, financing and start-up of the journal must be completed with a national agreement at all levels of public, central and regional administrations, so that the articles published in this digital magazine are duly considered in all the sections that we have listed throughout this article: accreditation by state and regional agencies, foundations, universities, regional health services, etc. This is essential, since, in this way, Spanish authors would already feel motivated to send their quality articles to the journal and the cost of maintaining a digital publication of these characteristics would not exceed one month the amount that public institutions pay for 3 or 4 publications in "impact" journals in open access.

The annual amount saved throughout Spain would be several million euros. Isn't this worth trying?

Conflict of interests: The authors declare no conflict of interest.

Bibliography

1. Watson JD, Crick FHD. A Structure for Deoxyribose Nucleic Acid. Nature. 1953;171(4356):737-8.
2. Fleming A. On the specific antibacterial properties of penicillin and potassium tellurite. Incorporating a method of demonstrating some bacterial antagonisms. J Pathol Bacteriol. 1932;35(6):831-42.
3. Garfield E. The history and meaning of the journal impact factor. J Am Med Assoc. 2006;295(1):90-3.
4. Sosa-Henríquez M, González-Macías J, Díez-Pérez A. ¿Qué es el factor de impacto bibliográfico? Su aplicación en el campo de metabolismo mineral óseo. Rev Esp Enf Metab Oseas. 1996;5(6):182-4.
5. Ranjan CK. Bibliometric indices of scientific journals: Time to overcome the obsession and think beyond the impact factor. Med J Armed Forces India. 2017;73(2):175-7.
6. Özcan M. Publish or perish, publish and perish. J Adhes Dent. 2014;16(2):103.
7. Torrie P, Berstock J, Hayward E, Bannister G. Publish or perish – How to avoid perishing. Med Teach. 2013;35(3):260.
8. Halperin E. Publish or perish and bankrupt the medical library while we´re at it. Acad Med. 1999;74(5):470-2.