

# Assessing the potentially misleading nature of metrics and of those who assess and create them

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## Abstract

This self-published note makes a formal critique of a paper published in Wiley's *Bioessays* as an invited paper: Gutierrez, F.R.S., Beall, J., Forero, D.A. (2015) Spurious alternative impact factors: The scale of the problem from an academic perspective. *Bioessays* 37: 474-476. DOI: 10.1002/bies.201500011. I am of the opinion that several incorrect and even misleading statements have been made in that paper. The refusal by the authors to respond to these concerns publicly, as well as the excuse by the publisher to not consider this critique on the basis of "journal space limitations" further accentuates the concerns. This model of publishing also serves as a viable way of exposing ideas and criticisms that lie beyond the manipulated hand of the self-serving interests of publishers.

**Keywords:** lack of publishing democracy; Jeffrey Beall; predatory open access publishers; unfair; Wiley

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## 1. Section-by-section dissection

I wish to provide some criticism of a paper published in *Bioessays* by Gutierrez et al. (2015) within a wider context of metrics in science publishing. At the outset, an important disclaimer, or piece of information, has been ignored, or has not been declared by the authors, namely the existence of a list of metrics that Jeffrey Beall refers to as "misleading metrics" (Beall, 2015a), referring instead to these in Gutierrez et al. (2015) by a different term, "spurious alternative impact factors". It is my opinion that central aspects of this paper by Gutierrez et al., including the data in Table 1, have been based on that undeclared list. The WayBack Machine (2015) indicates that such a list has been existent since at least March, 2014, although it is unclear exactly when this list was initially created. It is important to make this point clear since the opinions on the blog by Jeffrey Beall, the second author, contradict, in many ways, the opinions opined in this paper by Gutierrez et al., as explained next. At the outset, the verb "to mislead" can be broadly associated with leading into error, judgement or thought, to deceive, misguide or misdirect, usually through a deliberate action. I claim, in this letter, that the authors have shown no, or weak, proof of this claim, i.e., of the misleading nature of these new and spurious impact factors.

The first section of the Gutierrez et al. starts with an unnecessary eulogy to Thomson Reuters and the impact factor (IF), a recurring and unsupported position that Beall assumes, even in more recent opinion pieces (Beall, 2015b). Apart from a single reference by Garfield in *JAMA* (2006), not a single reference is provided that is critical of the IF (e.g., Seglen (1997), Casadevall and Fang (2014)), and of Thomson Reuters (e.g., Teixeira da Silva, 2013a), or the pathology of its application (e.g., Buela-Casal (2014)), or even a movement against its existence and use (e.g., DORA (2015)). One can thus say that this paper by Gutierrez et al. is, from the first paragraph, already considerably biased in that it lacks a balanced discussion.

The next three paragraphs ("Novel and alternative bibliometric measures", "Author-level science metrics", and "Article-level science metrics") introduce aspects that one would assume would be best analyzed and understood by a librarian, such as Beall. Yet, these three sections display not only strong bias, but also gross gaps in the wider literature on this topic caused by a superficial analysis. For example, the first section, rather than discussing the strengths and weaknesses of a wide range of new metrics, serves almost to advertise four metrics: SCImago Journal Rank, Elsevier's Scopus data-base, Thomson Reuters' Journal Citation Reports® (JCR), the Eigenfactor, whose data stems from JCR, Source Normalized Impact per Paper (SNIP) and the Impact per Publication (IPP), the latter two being created by Elsevier. The next two sections focus exclusively on Hirsch's *h*-index and on Altmetrics. And while there is no denying that these metrics are all interesting and a worthwhile discussion over a barbecue, perhaps, their context within this manuscript by Gutierrez et al. (2015) lacks a profound and consistent academic criticism and comparison. Why would Elsevier's SNIP and IPP not be questionable metrics, for example, employing terms similar to Thomson Reuters' JCR's IF? In addition, important literature that has already discussed the profusion of alternative metrics, and the concerns in academia regarding these alternative metrics, has been totally ignored (e.g., Van Noorden (2010), Jalalian and Mahboobi (2013), Krumholz (2015)). The phenomenon in which literature is accidentally or purposefully ignored, with the objective of emphasizing one's own work, is termed snub publishing (Teixeira da Silva, 2013b), and is a non-academic phenomenon. This is the second serious criticism of the Gutierrez et al. (2015) paper.

The third serious criticism of the Gutierrez et al. (2015) paper pertains to the fifth section ““Predatory” journals.” This term is both factually and conceptually incorrect. The authors are purposefully misleading the readership by using an incorrect term. The Beall blog specifically deals with open access (OA) publishers, which Beall considers to be “predatory”. By using the term “predatory” publishers, while referring to the Beall blog, is factually incorrect because the term “publishers” would refer to both OA publishers as well as traditional print publishers, which is not the focus of the Beall blog, unlike what is claimed in the Gutierrez et al. paper. The correct term that should have been used was “predatory open access” (POA) journals / publishers. This section collectively criticizes this set of “711 and 524 potential, possible, or probable predatory scholarly open access publishers and journals, respectively” (referring to <http://scholarlyoa.com/publishers/> and <http://scholarlyoa.com/individual-journals/>, respectively), yet fails to recognize that the traditional publishing model, including highly reputed journals with equally supposedly reputable, and in some cases high, IFs, are also the subject of serious criticism (e.g., PubPeer (2015)), making them, and their publishing models, as “predatory” (for having questionable academic practices) as those listed on Beall’s lists. The fact that there is absolutely no quantification of the level of “predation” is the greatest weakness of those lists, and to rely on these inaccurate lists disqualifies most statements made about such journals and publishers in this fifth section of the Gutierrez et al. paper. A solution to this weakness had been previously suggested (Teixeira da Silva, 2013c), but that study was also snubbed (i.e., failed to be cited) by Gutierrez et al. (2015).

Section 6 deals with “Questionable bibliometric measures”. In this section, the term “bogus” is used twice, and is not a very academic term that should not be used in an academic journal like *Bioessays*. The Merriam-Webster dictionary defines bogus as being “not genuine, counterfeit, sham”. Absolutely no proof is provided of the counterfeit nature of the metrics in Table 1. Gutierrez et al. (2015) state “These websites are part of the expected evolution of bogus publishers, since the requirements for a journal to be included in respected indexation sites are very strict...”, yet careful analysis of Thomson Reuter’s JCR, based upon which the IF is based, will indicate that the process of selection, and inclusion, is neither open, nor transparent, and the very fact that several POAs have an IF score undermines the rigor of Thomson Reuter’s selection process. Therefore, it remains unclear what “respected indexation sites” Gutierrez et al. are referring to, because this statement can most certainly not be referring to JCR. They further state that “these questionable impact factor services exploit the desperation of some publishers and authors to show some kind of scholarly metric”, but what they fail to recognize is that the culture of trying to assign a metric and equate it with quality was initiated by Thomson Reuters and the development and globalization of the IF, through its instrument, JCR. Therefore, the introduction of new, novel and competing metrics represents not only an expression of the free market system, representing a healthy movement away from the monopoly imposed by Thomson Reuters, but also shows the same desire to better quantify the quality, or use (syn. citations) in a manner that decentralizes the existence of current monopolistic Thomson Reuters and Elsevier systems. The economic importance of the IF is even more strongly evidenced by a recent bid by Reuters, the parent company of Thomson Reuters, to sell Thomson Reuters, estimated to be valued at more than \$3 billion (The Baron, 2015). Thus, the “desperation” that Gutierrez et al. criticize as being an “evil” of the “predatory publishers” is an intrinsic evil that existed within science publishing (in the form of the Thomson Reuters IF) long before any of these new metrics evolved, or existed. The only reason why such a wealth of new metrics has flourished and proliferated is in response to the monopoly of scientific “citations” claimed until relatively recently by Thomson Reuters and Elsevier with JCR and Scopus, respectively. The authors go further to call on the following entities to resolve the problem: “We believe that actions have to be taken, mainly from academic associations, universities, and research funding bodies, to stop such practices.” Yet, what the authors fail to encourage is that “such practices” includes also the inappropriate use of the IF to measure the quality or performance of science, journals, and scientists. A reference is missing for the COPE code of conduct “indispensable in science publishing [10] (CoPE, Code of conduct for journal publishers), since”, which should be COPE (2015). Another statement by Gutierrez et al. (2015) is highly problematic: “As occurs with predatory journals, a typical feature of these fake impactor websites is the use of names very similar to the most reputed scholarly metrics, or the misuse of the expression “Impact Factor,” wording that intentionally mislead potential contributors (Table 1).” First of all, what is an “impactor” (the term cannot be found in any English dictionary)? The term “impact factor” is not a proprietary term and there is no trademark (TM) or registered trade mark (®). Therefore, any entity or publisher has the full freedom to use this term, or any term similar to it, without a single legal claim by Thomson Reuters. The last sentence of this section refers to abstracting and indexing, a total distraction from the topic of the paper, and another low jab at the so-called “predatory publishers”.

Until the conclusion section, there is a grossly dyslexic, dysfunctional and biased attack on what may be perfectly legitimate metrics, or metrics that are just as legitimate as the Thomson Reuters IF, without a single shred of evidence that any of the entities listed in Table 1 in Gutierrez et al. (2015) is involved in foul play, academic abuse, or improper or illegal behavior. And even though Gutierrez et al. (2015) is an “opinion” paper, it sways the opinion of the readership through a very skewed prism. The bias and lack of accuracy extend themselves to the criticisms of the so-called POA journals/publishers.

The conclusion of Gutierrez et al. (2015) begins with nothing less than a highly questionable statement: “It is important to note that respectable Open Access journals are already included in JCR and Scopus databases.” The corollary is equally true, namely that JCR and Elsevier’s Scopus databases include journals that have published highly questionable research and that perform with highly suspect editorial practices, as documented, for example, at PubPeer, and that has led to the crumbling of the integrity of the traditional peer review system (Teixeira da Silva and Dobránszki, 2015).

## 2. Global overview

The Gutierrez et al. (2015) paper almost demonizes the existence of alternative metrics, or their lack of perfection from inception, yet the authors contradict their position by recognizing the social failure of Thomson Reuters to make IF scores OA “taking into account that the high cost of the subscription to JCR is a barrier to its access from researchers in low and middle income countries.” It is like the fact that Thomson Reuters has profited from the IF (\$1 billion in revenue in 2014), so there is clearly no interest in the social importance of making the IF free for all (i.e., OA), and it is likely this financial barrier to the IF that spurred the creation of this swathe of new metrics. The conclusion adds another unlinked and distracting factor that is totally unrelated to the issue of metrics. In conclusion, this paper by Gutierrez et al. (2015) paper provides weak and inconclusive evidence of the dishonest or “bogus” nature of new metrics, and takes a cheap jab at journals and publishers on a list that is flawed and whose “predatory” nature is imprecisely defined. As equally as these authors warn the scientific community of the potential risks of such OA publishers, and of these associated metrics, so too, should my letter warn the public to balance the inaccuracies and biased facts of this paper with the academic needs of their research institutes.

The nail in the coffin would have to be the criticism made by a blogger (Alex SL; March 12, 2014) on Beall’s blog’s misleading metrics page. Firstly, Beall classes “misleading metrics” based on 7 criteria: “1. The website for the metric is nontransparent and provides little information about itself such as location, management team and its experience, other company information, and the like; 2. The company charges journals for inclusion in the list; 3. The values (scores) for most or all of the journals on the list increase each year; 4. The company uses Google Scholar as its database for calculating metrics (Google Scholar does not screen for quality and indexes predatory journals); 5. The metric uses the term “impact factor” in its name; 6. The methodology for calculating the value is contrived, unscientific, or unoriginal. 7. The company exists solely for the purpose of earning money from questionable journals that use the gold open-access model. The company charges the journals and assigns them a value, and then the journals use the number to help increase article submissions and therefore revenue. Alternatively, the company exists as a front for an existing publisher and assigns values to that publisher’s journals.” The blogger (Alex SL) counters these criteria by stating “This is a good addition to the site but I am wondering about criteria 2, 3 and 5 because they also apply to Thompson Reuters. And yes, correct me if I am wrong, but that appears to include criterion 3. As long as more journals have themselves added to Web of Science each year, it is a logical necessity that most scores go up even if the actual number of citations doesn’t change, for the simple reason that only citations in those journals that are part of the list are counted to calculate the scores for the journals on the list. There is no cheating involved, it is just the mechanics of how the scores are calculated, and they will stop increasing once the number of journals on the list plateaus. It is thus hard to use this criterion to identify predatory ranking providers.”

In closing, it is a fact that Mr. Beall receives speaker fees and other perks for discussing such topics both in the USA and abroad. Despite this, no such declaration is made in the COI statement. This lack of a COI was not corrected, despite a formal request to the editor of *Bioessays*, Andrew Moore, a Wiley-Blackwell journal (*BioEssays*, 2015). Incidentally, Wiley-Blackwell is one of the contenders for purchasing Thomson Reuters and the IF (The Baron, 2015).

## Conflict of interest statement and conclusion

The author declares that the research for this paper was conducted in the absence of any commercial, financial or other relationships that could be construed as a potential conflict of interest. The author declares that even though he recognizes the importance of the awareness created by the Beall blog, that he is nonetheless a staunch critic of the lack of quantification of “predation” of the “predatory” open access journal/publisher lists, and other aspects of the [www.scholarlyoa.com](http://www.scholarlyoa.com) blog, maintained by the second author, Jeffrey Beall, as documented at Retraction Watch (Oransky, 2014). The risks associated with using these flawed lists is that potentially solidly academically sound OA publishers might be victimized, as was recently highlighted by a Tweet by Daniël Lakens, of the Eindhoven University of Technology, the Netherlands, and an associate editor at *Frontiers in Psychology: Cognition*: “Frontiers being added to Beall’s list reveals the big weakness of Beall’s list: It’s not based on solid data, but on Beall’s intuition” (Bloudoff-Indelicato, 2015). The use of these flawed lists to establish editorial policies that may be perceived as “discriminatory” because they exclude, based on inclusion/exclusion of references and literature in journals listed on the Beall lists, poses very serious risks that limit the freedom of a scientist to make choices about what work he/she can or cannot cite. I recently highlighted this risk in a letter (Teixeira da Silva, 2015) to the editors of *Journal of Threatened Taxa* (JOTT) who have implemented a policy that aims to force authors to remove citations from journals or publishers listed on the Beall lists who submit to JOTT (Raghavan et al., 2015). Other than the potentially discriminatory nature of this policy, it may also constitute a serious case of citation and literature manipulation. That issue needs greater debate.

Finally, a formal submission of this manuscript in 2015 to *Bioessays* was rejected on the premise of space limitations while the three authors never responded to several formal requests in late 2015 to provide commentary. It is sad and incorrect when authors are unable or unwilling to provide open and public counter-comment to criticisms about their published literature.

## References

- Beall, J. (2015a) Misleading metrics. <http://scholarlyoa.com/other-pages/misleading-metrics/> (last accessed: 1 January, 2016)
- Beall, J. (2015b) The “metric” system: yet more chaos in scholarly publishing. *The Journal of Physical Chemistry Letters* 6, 2020–2021. DOI: 10.1021/acs.jpcclett.5b00910
- Bioessays (2015) [http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1521-1878](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1521-1878) (last accessed: 1 January, 2016)
- Bloudoff-Indelicato, M. (2015) Backlash over journals blacklisting. *Nature* 526: 613. DOI: 10.1038/526613f
- Buela-Casal, G. (2014) Pathological publishing: A new psychological disorder with legal consequences? *The European Journal of Psychology Applied to Legal Context* 6(2): 91-97. DOI: 10.1016/j.ejpal.2014.06.005
- Casadevall, A., Fang, F.C. (2014) Causes for the persistence of impact factor mania. *mBio* 5(2): e00064-14. DOI: 10.1128/mBio.00064-14
- COPE (Committee on Publication Ethics) Code of conduct (2015) <http://publicationethics.org/resources/code-conduct> (last accessed: 1 January, 2016)
- DORA (The San Francisco Declaration on Research Assessment) (2015) <http://am.ascb.org/dora/> (last accessed: 1 January, 2016)
- Gutierrez, F.R.S., Beall, J., Forero, D.A. (2015) Spurious alternative impact factors: The scale of the problem from an academic perspective. *Bioessays* 37: 474-476. DOI: 10.1002/bies.201500011
- Jalalian, M., Mahboobi, H. (2013) New corruption detected: Bogus impact factors compiled by fake organizations. *Electronic Physician* 5(3): 685-686.
- Krumholz, H.M. (2015) The end of journals. *Circulation: Cardiovascular Quality and Outcomes* 8(6): 533-534. DOI: 10.1161/CIRCOUTCOMES.115.002415
- Oransky, I. (2014) Jeffrey Beall scores a retraction. <http://retractionwatch.com/2014/01/20/jeffrey-beall-scores-a-retraction/> (last accessed: 1 January, 2016)
- PubPeer (2015) [www.pubpeer.com](http://www.pubpeer.com) (last accessed: 1 January, 2016)
- Raghavan, R., Dahanukar, N., Molur, S. (2015) Curbing academic predators: *JoTT's* policy regarding citation of publications from predatory journals. *Journal of Threatened Taxa* 7(10): 7609-7611. DOI: 10.11609/JoTT.o4388.7609-11
- Seglen, P.O. (1997) Why the impact factor of journals should not be used for evaluating research. *British Medical Journal* 314: 497. DOI: 10.1136/bmj.314.7079.497
- Teixeira da Silva, J.A. (2013a) The Thomson Reuters Impact Factor: critical questions that scientists should be asking. *The Asian and Australasian Journal of Plant Science and Biotechnology* 7(Special Issue 1): 81-83.
- Teixeira da Silva, J.A. (2013b) Snub publishing: theory. *The Asian and Australasian Journal of Plant Science and Biotechnology* 7(Special Issue 1): 35-37.
- Teixeira da Silva, J.A. (2013c) Predatory publishing: a quantitative assessment, the Predatory Score. *The Asian and Australasian Journal of Plant Science and Biotechnology* 7(Special Issue 1): 21-34.
- Teixeira da Silva, J.A. (2015) A response to the editorial on predatory publishing. *Journal of Threatened Taxa* 7(15): 8305-8306. DOI: 10.11609/jott.2337.7.15.8305-8306
- Teixeira da Silva, J.A., Dobránszki, J. (2015) Problems with traditional science publishing and finding a wider niche for post-publication peer review. *Accountability in Research: Policies and Quality Assurance* 22(1): 22-40. DOI: 10.1080/08989621.2014.899909
- The Baron (2015) Thomson Reuters mulls sale of business that 'does not align'. <http://www.thebaron.info/news/article/2015/11/11/thomson-reuters-mulls-sale-of-business-that-does-not-align> (last accessed: 1 January, 2016)
- The WayBack Machine (2015) <http://web.archive.org/web/20140323012101/http://scholarlyoa.com/other-pages/misleading-metrics> (last accessed: 1 January, 2016)
- Van Noorden, R. (2010) Metrics: A profusion of measures. *Nature* 465, 864-866. DOI: 10.1038/465864a