Predatory publishers threaten to consume public research funds and undermine national academic systems – the case of Brazil

An unintended consequence of the open access movement, predatory publishers have appeared in many countries, offering authors a quick and easy route to publication in exchange for a fee and usually without any apparent peer review or quality control. Using a large database of publications, **Marcelo S. Perlin**, **Takeyoshi Imasato** *and* **Denis Borenstein** *analyse the extent of this problem throughout the entire Brazilian academic system. While predatory publications remain a small proportion of the overall literature, this proportion has grown exponentially in recent years, with both early-career and established scholars found to have authored papers published in predatory venues. The inclusion of predatory publications in national journal quality rankings has been a key factor in this increase.*

The maxim "publish or perish" is more relevant than ever, now in evidence all over the world. As a consequence, academic publishing is booming, with demand to publish in scientific journals having increased exponentially in recent years. This prompted the launch of a succession of new journals, a large number of which operate according to an open access (OA) model whereby the cost of publication is transferred from the reader to the author.

A disturbing side effect of this new publishing environment is the emergence of so-called "predatory publishers". An unintended consequence of the OA movement, predatory publishers have appeared in many countries, offering quick and easy publication in exchange for a fee, usually without any apparent peer review or quality control. Although concerns have been raised over predatory journals, these are often accounts based on experience of a limited number of journals, or research studies limited to a specific subject.

Our research, recently published in *Scientometrics*, analyses the extent of this problem throughout the entire Brazilian academic system. Our study uses a quantitative approach based on a large database of published papers (2,349,719 publications from 102,969 individual researchers) and constructed using reliable, replicable, statistical-based methods. Publications data was taken from Lattes, an information system maintained by the Brazilian Government to manage information on science, technology, and innovation related to individual researchers and institutions working in Brazil. By gathering bibliometric data for all academics from 2000 to 2015, we were able to identify predatory publications, their year, and the profiles of authors.

First, we compiled a database of predatory journals using data from the now extinct Beall's list, the Directory of Open Access Journals (DOAJ), and standard impact factor tables – Journal Citation Reports (previously Thomson Reuters, now Clarivate Analytics) and SJR (Scimago Journal Ranking – Elsevier). While not perfect, and certainly not without its critics, Beall's list highlighted a large number of allegedly predatory publishers and journals that were being referenced extensively in the research literature.

We set three levels of predatory identifications. The least severe, Level I, contains all journals found in Beall's list. The second, Level II, contains those journals found in Beall's list but not also included in the DOAJ. Level III, the most severe, contains those journals included in Level II but which also do not have an impact factor (in either JCR or SJR). The proportion of published papers in each category is presented in Figure 1.
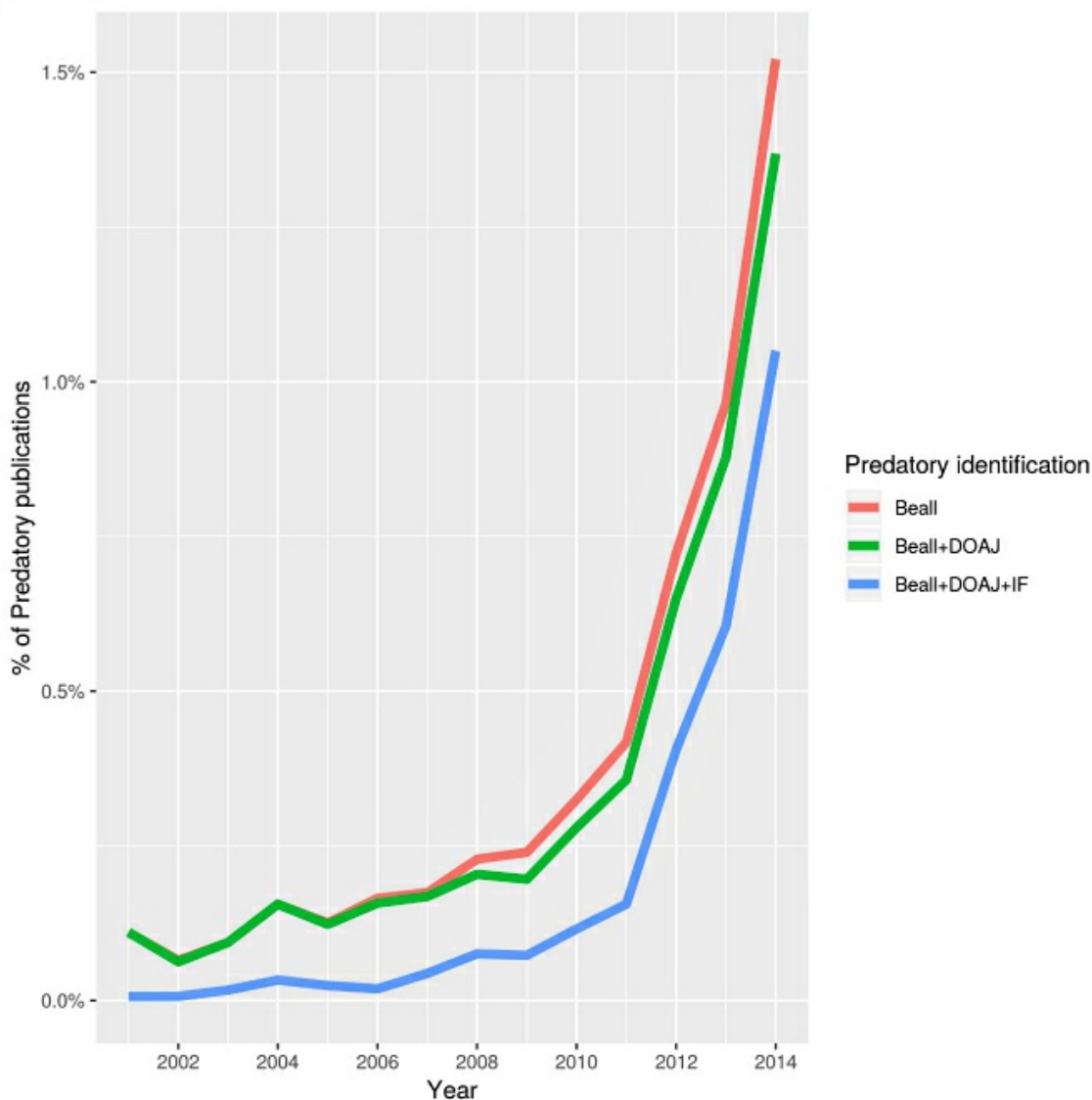
Figure 1: The percentage of predatory publications per year

When looking at the profiles of the researchers publishing in these venues, the results were striking. Contrary to our initial expectations, those to have published significantly in predatory venues are experienced scholars, many years into their careers, and with many previous publications. The idea that young researchers, vulnerable due to their inexperience, are the victims of predatory publishers is simply not corroborated by the data. We cannot, however, attest to whether or not the researchers were fully aware of the practices of these journals at the time of submitting their work. Most concerning about these results is that funding to pay the publishing fees of predatory journals may come from research grants awarded by governmental agencies; part of a vicious circle in which experienced researchers increase their number of publications in order to become more competitive when applying for grants, and subsequently use the funds obtained to publish more papers in predatory journals.

Also interesting is the way we formally acknowledge the quality of a publication in Brazil. We use Qualis as the local assessment of the quality of journals. Similar to the ABS journal rankings, Qualis ranks journals from A1 (the highest quality) to C (lowest quality) and is used to assess the performance of researchers and to evaluate postgraduate courses. Needless to say, Qualis sets the bar and is the main driver of publications in Brazil. When cross-referencing the datasets from Qualis with our own predatory classifications, we find many predatory journals throughout all rankings of Qualis, but mostly in the lower ones. Going further, we investigated whether or not a predatory journal included in Qualis publishes more articles than a non-predatory one. A positive result could go some way to explaining how predatory publications are entering and expanding in the system. Our results show that when a predatory journal enters Qualis, it publishes a significantly higher number of articles than non-predatory journals. That is, the predatory journals classified in Qualis are being targeted by authors in a significant and worrying way.

The message from our research is clear: predatory journals are not yet undermining the academic system of Brazil, but may do so in the future. As we can see in Figure 1, the proportion of the research literature made up of predatory journals is increasing at an alarming rate. We provide strong evidence to suggest Qualis is a key factor in why we see such an increase. If not identified and combatted, predatory publishers may consume important research funds at the expense of the scientific endeavour.

Although our results are restricted to Brazil, they constitute a warning to other countries with a similar academic system. The use of a local journal ranking such as Qualis is not novel or restricted to Brazil; countries such as Australia with the ERA (Excellence in Research Australia) system, Norway with the CRIStin initiative, and Colombia with Publindex, all have their own standards. We suspect that if our study is replicated in these countries, similar results may be found.

Raising awareness of predatory journals and publishers is essential to the sustainable future of academia, based on rigour and relevance. This task should be undertaken by research funding agencies. The results of our research indicate that researchers may be exploiting the inertia of these agencies in combatting the more energetically predatory journals and using governmental funds to publish "questionable" scientific research results.

The data used in our research is publicly available via an online application providing easy access to the database. We hope these simple tools can contribute to minimising the penetration of predatory publishers in the academic system.

This blog post is based on the authors' article, "Is predatory publishing a real threat? Evidence from a large database study", published in Scientometrics (DOI: 10.1007/s11192-018-2750-6).

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