THE DANGER OF THE PUBLICATION RACE:

Questionable journals, retracted papers and citation pollution

A credible publication record is crucial for academic growth. It showcases researchers' expertise, which in turn brings career advancement, funding and prestige to their institutions and countries. More importantly, quality research contributes to science that may improve lives, especially during times such as the COVID-19 pandemic. But what happens when the publication process is compromised by pressure to publish?
By *Antoinette Oosthuizen* and *Shingirirai Muzondo*

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Sarah (pseudonym) spent months producing an excellent paper based on her master's research. She was thrilled when a journal publisher approached her. This was such fine work, an indication of great talent and a promising future, said a flattering email. The article would be published quickly at a discounted rate. She would be cited by her peers; it would boost her academic career...

However, the young researcher had been duped by a publisher of a 'predatory journal', which, intent on making profit, was in the habit of skimping on peer review processes and was not respected by reputable scientists.

Sarah tried to withdraw her submission, but the publisher wanted a $500 'withdrawal fee' – or they would publish the paper without her name on it. She refused. A few months later, her paper was published, crediting two fictitious authors purportedly affiliated to the prominent South African university from which she had recently graduated.

"It is now what we call a 'dead' paper. She can't publish it anywhere else, and won't get any citations," explained Denise Nicholson, a specialist librarian in copyright and scholarly communication at Scholarly Horizons. Nicholson was speaking at the Emerging Questionable Publication Practices seminar hosted by the Network of Data and Information Curation Communities in April 2021.

Importance of publication and citation

Academics share their knowledge and boost their credibility and the status of their institutions by publishing in reputable journals. In South Africa, a good publication record may lead to continued funding and improved National Research Foundation ratings, which benchmark the country's researchers against the best in the world.

Citing another's work acknowledges and credits an idea as belonging to someone else. The number of times a paper is cited is an indication of how widely it has been read by other academics. Credible journals normally have a good impact factor, an index reflecting the average yearly number of citations a journal received in the previous two years.

Predatory journals – Beall's list

In 2008, University of Colorado librarian Jeffrey Beall published a list of predatory open-access publishers on his blog 'Scholarly Open Access'. According to Beall, these publishers collected fees from authors without performing real peer reviews, thereby making money by processing large volumes of papers with short turnaround times.

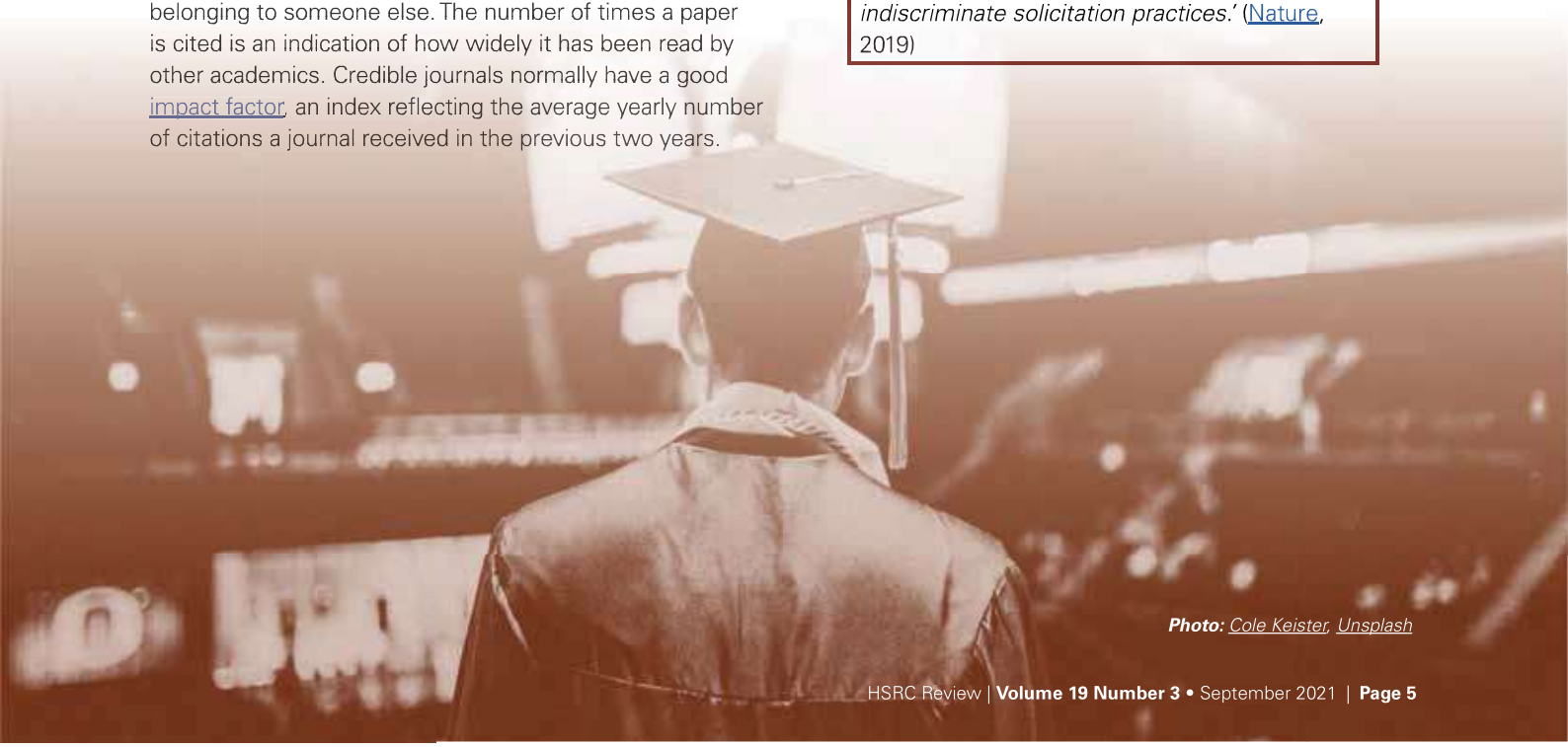
'Open access' refers to free, unrestricted online access to journal articles and books. But the open-access movement is not the villain here, emphasised Prof Johann Mouton, director of Stellenbosch University's Centre for Research on Evaluation, Science and Technology and the DSI-NRF Centre of Excellence for Scientometrics and STI Policy. He was speaking at the *Avoiding predatory journals* seminar hosted by Elsevier Africa, also in April 2021.

"When online publications replaced traditional print journals, it opened the way for predatory publishers and created opportunities for fraudulent and unethical practices," Mouton said. He added that the culture of performance appraisal at academic institutions has contributed to the problem: "How many publications you produce is rewarded, not necessarily the quality."

In 2017, after threats of defamation lawsuits, Beall deactivated his blog. Since then, researchers have been debating the definition of 'predatory'. In 2019, Mouton was among 43 scholars from 10 countries who gathered in Ottawa, Canada, and agreed on the following:

Ottawa declaration

'Predatory journals and predatory publishers are entities that prioritize self-interest at the expense of scholarship and are characterized by false or misleading information, deviation from best editorial and publication practices, a lack of transparency, and the use of aggressive and indiscriminate solicitation practices.' (Nature, 2019)



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How to identify a predatory journal

In 2017, Stefan Eriksson and Gert Helgesson listed several characteristics of predatory journals. These included those not being indexed in well-established electronic databases or being a recent start-up that claims to be a 'leading publisher' with an impact factor. It may be nobody has heard of the journal, it publishes pseudo-science, and has typographical and factual errors in titles and abstracts. Details of the editorial board and office location may be absent or mimic those of another journal. The journal title and website may also claim affiliation to a country where it is not located.

According to Nicholson and Mouton, unscrupulous publishers typically solicit manuscripts by sending flattering emails to researchers (as happened to Sarah). Researchers should always contact their supervisors and library services when looking to publish. To identify questionable publishers, look out for the following:

Signs that a publisher may be unscrupulous:

- Fees are undisclosed, deceptive, hidden or vague
- False information on their website
- Fake or unrecognised indexes
- Promises of quick publishing time
- Offers of discounts
- Poor grammar and spelling
- Excessive, unrelated advertising and bright colours on their website
- Journal covers too broad a disciplinary scope
- Inappropriate or misleading journal titles
- Unlikely 'editorial board' – all from the same institution
- Poor or no peer review – authors are not required to rework material
- Office location not clear, difficult to contact

Search the Directory of Open Access Journals which vets open-access journals for inclusion.

Reputational damage

"The number of research articles has a direct bearing on academic appointments, tenure, promotional opportunities, research ratings and status," said Nicholson. Academic institutions frequently use number of publications as a measure of competency and institutional worth.

Publishing in predatory journals can tarnish academic reputation, even if the researcher was unaware before submitting, added Mouton. "If too many academics at the same university continue to publish in predatory journals and also engage in other unethical publication practices, it starts to reflect badly on the reputation of the university."

Dead papers

While Sarah's 'good paper' was essentially lost to science in a predatory journal, bad science also gets published by these journals and has the potential to pollute a discipline. Fortunately, these journals don't get cited much.

To estimate the scientific impact of predatory journals, a 2020 Finland study looked at Google Scholar citation statistics for 250 random articles published in predatory journals in 2014. The researchers found an average of 2.6 citations per article over a five-year period.

A comparison group of peer-reviewed articles randomly sampled from the Scopus index, a bibliographic database of reputable journals, averaged 18.1 citations over the same period. Moreover, only 9% were uncited – compared to 56% of articles in the predatory journal group.

The researchers concluded that the predatory journal articles had little scientific impact.

However, they recommended further studies to identify articles with serious methodological flaws. They said the biggest risk was if activists picked up poor-quality articles on 'highly contagious' topics, such as climate change and vaccination, and shared them on social media to further their interests.

Citation pollution

But what happens when a reputable journal makes a mistake and lets in bad science?

Simply identifying whether a journal is predatory is not enough, said Prof Kirstin Krauss from the University of South Africa's School of Computing at the *Emerging Questionable Publication Practices* seminar.

A bigger challenge is when claims made in retracted papers that originally appeared in reputable journals continue to spread through 'citation pollution', warns Krauss. This phenomenon can misdirect future research and erode trust in science.

In 2020, Krauss and his colleagues analysed 33 retracted COVID-19 papers and their citations. They found that the 'COVID-19 publication race' amplified the already problematic pressure-to-publish research culture. "Many of these papers were accepted, published and cited at a tremendous pace, some within a couple of days, even in legitimate and reputable journals," said Krauss. In many cases, the retracted research was not removed from review papers that had cited them.

The danger is when such retracted papers continue to shape public opinion, distort discourse and misdirect public policy and medical management during a pandemic such as COVID-19.

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