



Dangerous Predatory Publishers Threaten Medical Research

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This article introduces predatory publishers in the context of biomedical sciences research. It describes the characteristics of predatory publishers, including spamming and using fake metrics, and it describes the problems they cause for science and universities. Predatory journals often fail to properly manage peer review, allowing pseudo-science to be published dressed up as authentic science. Academic evaluation is also affected, as some researchers take advantage of the quick, easy, and cheap publishing predatory journals provide. By understanding how predatory publishers operate, researchers can avoid becoming victimized by them.

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DIAGNOSIS: PREDATORY PUBLISHERS

You probably have received many spam emails from unfamiliar publishers and journals inviting you to submit your research manuscripts for publication or to serve on a new journal's editorial board. The emails typically promise a fast and easy publishing process and make claims about the "high quality" of the journal, bragging about where it is indexed and about the high metrics it has earned.

Many such emails come from what I have termed 'predatory publishers.' Predatory publishers generally charge authors to publish their research articles but make the content freely available on the internet. This model is called gold (author-pays) open access. While there is nothing inherently wrong with this publishing model, the predatory publishers have exploited weaknesses in the model and seek only to earn as much money as possible from researchers. Their websites may appear similar to those of high quality publishers, but they are counterfeit, and most do not perform a standard peer review. They prefer to quickly accept and publish as many papers as possible, so they can earn money from scholarly authors.

Thus, by definition, predatory publishers and journals are those that exploit the gold open-access model for their own profit. I understand that the term predatory does not translate well into all languages, and some prefer to use other terms, like vanity publisher, or parasitic publisher. Whatever name you prefer, these publishers are a threat to science, a threat to academic evaluation, and a threat to scholarly communication itself.

Many predatory publishers pretend they are 'associations' or 'institutes,' and they publish journals whose titles are similar to the titles of established and respected journals. Often they incorporate terms such as International, or Global, or Universal

into the journal titles to attract submissions from authors needing a publication in an international journal. As mentioned, they use spam email to solicit article submissions, and many give false information about their headquarters locations, claiming to be based, for example, in London or New York, when they are really based in South Asia or West Africa. Often predatory journals claim they have 'impact factors' when they really do not, and there are now companies that supply fake impact factors to such journals.

Many predatory publishers use boastful language, claiming that their journals are 'leading journals' in their fields, and many claim to be indexed in Scopus when they are not indexed anywhere except in Google Scholar, which aims to be comprehensive and includes most journals, regardless of their quality.

Overall, predatory publishers are not transparent about where they are based, who the owners are, and what other publishers they are associated with. They use deception to trick authors into submitting papers, and they do not follow the established standards and practices of the scholarly publishing industry.

Unwary authors sometimes respond to a publisher's spam email by forwarding a manuscript. In some cases, the publishers immediately publish the paper, with no peer review and no revisions requested. Then the author is surprised by an invoice from the publisher, sometimes for over two thousand dollars. At this point, the author becomes suspicious and emails the publisher asking for the manuscript to be withdrawn. But the predatory publisher refuses to withdraw the paper unless a 'withdrawal fee' is paid. The author has the choice of paying the publishing fee or the withdrawal fee, and the author cannot submit the paper to another journal because it is already published. The predatory publisher holds the paper as a 'hostage' until the 'ransom' is paid.

I first started writing about predatory publishers in 2009 and coined the term predatory publisher in 2010 (1). I publish a blog called Scholarly Open Access (<http://scholarlyoa.com>) that includes a list of predatory publishers, and the list now has over one thousand entries. A second list includes predatory or questionable standalone journals. These are low-quality or predatory journals that exist alone on the Internet, with no named publisher. Many of these are mega-journals and have broad scopes. They want to accept as many papers as possible so they can generate more revenue from authors. My blog also includes commentary on predatory journals, with two blog posts published each week.

THE DAMAGE THAT PREDATORY PUBLISHERS CAUSE

By far, predatory publishers damage science more than anything else. They do not faithfully manage peer review, allowing questionable science to be published as if it had passed a strong peer review. We know that peer review often results in papers being rejected for publication, but this rejection is contrary to the business model of many open-access publishers, because they only want to generate as much revenue as possible.

Peer review also helps authors find and eliminate errors before the final version of the scientific article is prepared and published. Peer review benefits authors and benefits science itself. We also know that research is cumulative, and new research builds on the foundations established by earlier research. When writing scientific articles, many researchers first search the scholarly literature to discover what earlier research has been published on the particular scientific question they seek to answer. Because of predatory journals and their negligent peer review management, now many unscientific articles have been published. The scientific literature has become polluted, bringing the cumulative nature of research into doubt.

When doing literature searches, researchers should take care in deciding which articles to cite and which to ignore. If a scientific paper cites earlier articles published in predatory journals, it may itself be considered questionable. Unfortunately, some scholarly databases have not been careful and have included the content of predatory journals. One example is Google Scholar. For those researchers wanting to avoid low-quality academic indexes, academic librarians are able to recommend high quality scholarly indexes.

Now many predatory journals accept and publish 'advocacy research'. This type of research supports a particular political, religious, or social agenda using questionable science that normally would not pass through peer review. For example, some have written that asbestos is non-toxic, but the articles making this claim originated from the asbestos industry. Anti-nuclear researchers have published research 'concluding' that nuclear

power plants are more harmful than honest science has found. Others have written articles claiming a newly-discovered drug is efficacious, hoping to attract investors and even selling the drug over the Internet without government approval.

Another problem predatory journals have made possible is the publication of pseudo-science. One field of study that seems to regularly attract pseudo-scientists is cosmology. There are open, unanswered questions in cosmology, including the question of the nature of dark matter and dark energy. Some researchers have used the easy publishing process that predatory publishers offer to 'answer' these questions. Others write to 'correct' Einstein or Newton. Their articles tend to be written in such a way that it is difficult to prove or disprove them. Papers denying climate change or the anthropogenic nature of climate change are also commonly published in predatory journals.

Academic evaluation has been negatively affected by predatory journals. For many decades, universities relied on the scholarly publishing industry to properly manage peer review and to enforce selectivity in science and other research. But now, getting an article published is easy — all one has to do is deliver a manuscript and pay the fee. Unfortunately, many universities have not updated their evaluation policies to account for the existence of predatory journals. Too many of them look only at the number of publications, ignoring the quality of the journal where the research appears.

This problem has led to some university faculty taking advantage of the easy publishing process in low-quality journals. They quickly publish several journal articles while honest colleagues publish a smaller number of articles but in higher quality journals. However, the university only looks at the number of articles each researcher has published, giving an unfair advantage to those using predatory journals.

Not all researchers who publish in predatory journals are exploiting the easy publishing, however. I call such journals predatory because they aim to trick honest researchers, and often they are successful at this. So sometimes we see good research published in bad journals, because an honest researcher has been fooled by the predator.

Sometimes spam emails come at just the wrong time. Because top journals are selective, they frequently reject articles, even good ones. This can cause a sense of despair for the authors (2). Sometimes, when this happens, the author receives a spam email from a predatory journal inviting him/her to submit a paper. Because (s)he is depressed, (s)he submits the paper to the predatory journal, where it is quickly published. Later, the author regrets the bad decision. The predatory publisher is happy because it has easily earned money from the researcher.

Some medical researchers have been tricked by predatory journals that use graphic medical pictures to make themselves look legitimate. If you see a publisher website or receive a spam email that contains pictures of surgical procedures, it may be a

predatory publisher.

Open-access journals with higher impact factors tend to charge higher fees to authors. This higher pricing may exclude researchers without funding from participating in scholarly publishing. There are some open-access journals that do not charge fees, however.

OTHER SCHOLARLY PUBLISHING SCAMS

You probably have also received many spam emails from conference organizers. These 'predatory conferences' solicit submissions much like predatory journals do. Typically, they spam frequently, they hold many conferences in many cities each year, and they organize five or more conferences simultaneously at the same hotel. The conferences are often held in resort cities.

Some conference organizers make deals with predatory publishers and arrange for the conference paper to be published in one of their journals. A good way to avoid predatory conferences is to find non-profit scholarly societies in your field and attend only conferences organized by respected and established scholarly organizations or associations.

Researchers should also be aware of 'hijacked' journals. These are respected journals, usually with an impact factor from Thomson Reuters, for which someone has created a counterfeit website. The counterfeiters then send spam emails, acting as if they were the real publishers of the journal. They accept all submissions and charge the authors. Their victims are typically authors seeking fast publishing in impact factor journals.

I mentioned fake impact factors earlier. There is only a single source of the authentic impact factors, and this is a product called Journal Citation Reports® published by Thomson Reuters. Bo-

gus firms now make up and sell or license bogus impact factors to open-access journals. The journals then display these fake impact factors on their websites and in their spam email, hoping that researchers will believe the journal has an authentic impact factor or is a legitimate journal. If the impact factor is important to you, always verify a journal's claim that it has earned an impact factor. Your university librarian can help with this.

CONCLUSION

Scholarly open-access publishing arrived with great promise, but in many cases it has been exploited by predatory publishers who only seek to profit from honest researchers. By learning about how these fake publishers operate, researchers can avoid them and be sure their research is submitted to and published in high quality academic journals.

DISCLOSURE

The author has no potential conflicts of interest to disclose.

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