

EDITORIAL

Beware of Predatory Journals: A Caution from Editors of Three Family Medicine Journals

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Two Case Reports

Case Report 1: A research article was submitted and later withdrawn, even though it was proceeding nicely through the review process at the *Journal of the American Board of Family Medicine* (JABFM). On further investigation, the author reported they had originally submitted the manuscript to a predatory journal, but within 48 hours recognized their error and requested withdrawal of the article. The predatory journal published the article anyway, without permission, a fact discovered only during the review process at JABFM.

Case Report 2: A reviewer of a manuscript submitted to *Family Medicine* (FM) discovered a possible duplicate in an online journal, which led to an allegation of academic misconduct for submitting a previously published article. The author had paid a fee when submitting the manuscript to a predatory journal but later asked that the article be withdrawn after it became apparent that the journal conducted no formal peer review. The predatory journal published the article anyway, without the author's permission. The author learned the article had been

published only when questioned about possible academic misconduct.

The Problem

The earnest authors in these case reports fell victim to a growing threat to academic publication: predatory journals. As editors of journals serving family medicine, we see both the injuries done to well-intentioned authors and the losses of research and scholarship resulting by predation by unscrupulous journals. The risks of entanglement with predatory publishers are of special concern in family medicine because our research and scholarship range so widely over topics, methods, and disciplines. Our discipline also encourages scholarly work by authors who may be less versed in the process and perils of publishing, including learners, nonacademic practitioners, teachers, patients, and community representatives.

Our 3 family medicine journals (JABFM, FM, and *Annals of Family Medicine* [AFM]) serve a large community of authors, readers, researchers, reviewers, patients, and populations. We adhere to international ethical and scientific standards, including the International Committee of Medical Journal Editors (ICMJE; <http://www.ICMJE.org>) and Committee on Publication Ethics (COPE; <https://publicationethics.org>). Our journals provide free content to all readers worldwide and are indexed in MEDLINE for recognition and immediate retrieval. We charge no submission, processing, or publication fees to authors. (See Table 1.) We do all this through the sustained generous support of our professional organizations dedicated to family medicine/primary care. We also rely on our dedicated corps of peer reviewers who generously donate their time and expertise to the essential peer review process.

Our true "free access" model is unfortunately becoming rare in the competitive world of medical

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Table 1. Professional Services Provided by Three Major US Family Medicine Journals*

1. Provide free, worldwide access to all content immediately upon publication.
2. Require no author fees, article preparation, or publication charges.
3. Provide authors professional peer review and editorial services to help improve the presentation and dissemination of their scholarly work.
4. Provide readers and the field quality control on the selection of material published.
5. Index articles in MEDLINE, PubMed, and other major databases.
6. Commit to transparent processes for submission, review, editorial decisions, and publication.
7. Follow established principles of publication ethics.
8. Require authors to follow principles of ethical research.
9. Protect all published material with copyright.
10. Permanently archive research reports for access and retrieval.

**Journal of the American Board of Family Medicine, Family Medicine, and Annals of Family Medicine.*

journal publishing. We write to alert potential authors and help them navigate the shifting sands of predatory publication in medical science.

Predatory journals pose several risks to authors (see Table 2). Their presence and practices also threaten the legitimacy and quality of published scientific reports and threaten to undermine confidence in published research and science. Readers and news outlets who do not recognize predatory journals may rely on and disseminate their published research findings. These journals have been called “fake news” by Bloomberg Businessweek,¹ “garbage collectors” by A Moore,² and simply, a “scam” by Jones and McCullough, who noted that “The real ethical injustice of predatory medical journals is ... in contaminating the medical literature with nonscientific publications or even perversions of scientific publications, which are potentially harmful to patients should unsuspecting readers put unfounded ideas into ... practice.”³

The terms “predatory journal” and “predatory publisher” were adopted in 2010 by the University of Colorado librarian Jeffrey Beall to describe “unscrupulous open access publishers publishing articles with little or no real peer review.”⁴ We agree with the Wikipedia definition, “predatory open-access publishing is an exploitative open-access publishing business model that involves charging publication fees to authors without providing the editorial and publishing services associated with legitimate journals (open access or not).”⁵ A predatory publisher may operate multiple predatory journals, sometimes many.

Predatory journals do not meet the accepted standards for professional scientific publications and do not qualify for indexing in major bibliographic indexes, such as MEDLINE and PubMed. Thus, they may not be searchable and less likely to be cited by other scholars. The names often seem attractive by using familiar words found in the titles of well-recognized legitimate journals. Predatory journals typically charge fees to authors, work on for-profit business models, and are based in countries outside the United States, Canada, or Europe (although their inviting messages often originate from US addresses). The fee may not be revealed until after the author submits the manuscript or after it is accepted. Manuscripts often undergo little or no peer review, get inadequate editorial guidance, and may appear on-line, if at all, with poor production quality. Some predatory journals publish submitted articles online immediately or within days of the receipt of the publication fee.

Table 2. Hazards of Submitting Scholarly Work to a Predatory Journal

1. No peer review or editorial assessment and guidance.
2. Article may not be indexed or accessible to readers worldwide.
3. Paper may never be published or only be intermittently available.
4. If published, paper might may not be permanently archived for search and retrieval.
5. Work might be published without author permission.
6. Paper may not be protected by copyright or copyright not enforced.
7. Charges high fee for publication: “article processing charge.”
8. No dissemination to target readership.
9. Lack of academic recognition.
10. Prevents subsequent publication in a legitimate journal.
11. Supports an unscrupulous and predatory industry.
12. Undermines professional and public trust in published research.

To give themselves the appearance of legitimacy, these journals try to assemble editorial boards and reviewer panels, often by sending mass email invitations to recruit researchers and faculty members to join. They may offer free submission and publication to those who agree to serve. Some offer money for editorial positions. Those who unwittingly agree may find it difficult to get their names dissociated from such journals. Some academics have discovered their names listed as editors or editorial board members of predatory journals without ever having been asked for, or given, their permission.⁶

Once an article is published, even in a predatory journal, it cannot be submitted or published in another journal. Publication ethics and scientific practice prohibit duplicate publication of original research except under specific circumstances, as noted by ICMJE and COPE. An author may recognize the predatory nature of the journal too late and find it difficult or impossible to retract the manuscript or to get the article removed from the website. The author may also discover that the article is only intermittently available on the journal's website.⁷ Furthermore, there may be no clear publishing agreement or effective copyright protection.

Why Has This Happened?

Many factors have contributed to the appearance of predatory journals. First, the internet and inexpensive software provide a low-cost platform that allows anyone, anywhere, to create a journal and website, invite authors to submit manuscripts, and pretend to process them. Without the same costs as legitimate journals, it takes only a few unsuspecting authors to make a profit from each plausible, but illegitimate, journal title. Second, the volume of scientific research and pressures on academics to publish have increased exponentially. Third, pharmaceutical advertisers have directed their dollars away from journals, often to direct-to-consumer media. As a result, some financially struggling professional organizations have turned their journals over to corporate publishers. Fourth, the recent consolidation of journal publishing by several large publishing firms has resulted in soaring subscriptions prices⁸ for individuals and libraries, whose resources are dwindling.⁹

As a consequence of the decline in subscriptions and revenues, journal publishers seek to cover their

costs and/or increase their profits by charging "article processing fees" (APFs) to authors. Some offer prompt "open access" publication for a substantial fee but sequester the articles of those who do not pay behind subscription paywalls. A growing number of legitimate journals charge such fees, which has made it more difficult for authors to detect "predatory" journals. These paywalls also create barriers. Although readers connected to major health science libraries may get subsidized access to legitimate journals, unfortunately, others including patients, community members, and practitioners often have to pay significant amounts per use to read [taxpayer supported] research reports.

As authors and their institutions struggle with increasing publication fees, predatory journals have found a ready market of eager authors. In 2015, *BMC Medicine* estimated the revenue from the predatory journal market at \$74 million compared with \$244 million for reputable open-access journals and \$10.5 billion that traditional journals collected in 2015.¹⁰

What to Do: Navigating the New World of Scientific Publication

Authors should carefully navigate this complex and changing landscape of journal publishing. We encourage all authors to investigate prospective journals thoroughly and choose a target journal early in the process of research and writing. Several resources can help authors identify predatory journals¹⁴ (Table 4). Beall's list was an attempt to identify predatory journals, but under pressure, he quit publishing in 2016; at that time, the list included 1155 publishers.¹

Additional warning signs and strategies to identify predatory journals are listed in Table 3.

"Indexing" is an important measure of legitimacy. Established journals that meet quality standards can apply for and become included in key bibliographic indexes. The world standard index for clinical medicine and biomedical sciences is MEDLINE, the National Library of Medicine (NLM) journal citation database. To be indexed in MEDLINE, the journal must be examined and approved by the NLM Literature Selection Technical Review Committee (LSTRC) using explicit criteria (<https://www.nlm.nih.gov/pubs/factsheets/jsel.html>).¹¹ Medline can also deselect journals if they no longer meet criteria (see example of a journal switch-

Table 3. Identifying Predatory Journals and Publishers

Journal Title
<ul style="list-style-type: none"> • Do you recognize the journal name as well established and reputable? • Do you read the journal regularly? Do you cite papers from this journal in your references? • Watch for familiar words chosen to sound like mainstream journals.
Solicitation
<ul style="list-style-type: none"> • Did you receive an email invitation from an editor you don't know from a journal you do not recognize? • Do they promise rapid review, high likelihood of acceptance, and quick publication online only?
Website
<ul style="list-style-type: none"> • Does the website appear professional, with carefully edited text and optimized images? • Do web links function properly? Is there a working search function? • Does the journal have a professional publishing office with a clear address and contact information? Check the address with online mapping program to see if it might be just a mail drop to establish a US address. Consider calling the journal office. • Are manuscripts submitted by email (worse yet, to a nonprofessional address), rather than through an editorial manager program? • Does the website reference the Index Copernicus Value (a bogus impact metric)?
Sponsorship
<ul style="list-style-type: none"> • Is it clear who owns the journal? Is the owner also an editor? Is it published by a major professional association that you recognize? • For how many years has the journal been published? (Longer is better.) • Confirm the journal name on the organization's official website.
Indexing
<ul style="list-style-type: none"> • Is the journal listed by the National Library of Medicine in MEDLINE and thus also in PubMed? Medline is more important for legitimacy; PubMed is used as a search engine more often. • Is the journal also indexed in other prominent indexing systems, such as: OVID, EMBASE, Scopus, PSYCHINFO, or CINAHL?
Content
<ul style="list-style-type: none"> • Review the table of contents and published papers of several issues. Is the journal's content related to common themes and appear legitimate? Excessively broad content raises concerns. • Are authors of research articles also named on the editorial team or editorial board, suggesting a closed group?
Editorial Team
<ul style="list-style-type: none"> • Do you recognize names on the editorial team or editorial board? Are they major experts in content areas of the journal and your work? Are their affiliations listed? • Do they represent a broad group from a variety of institutions and nations?
Peer review
<ul style="list-style-type: none"> • Does the journal outline a rigorous peer review process and give realistic timelines?
Production values
<ul style="list-style-type: none"> • Examine the website, article text, images, and references; are they in professional, high-quality format?
Policies
<ul style="list-style-type: none"> • Does the journal require authors to declare adherence to ethical research standards, such as protection of human and animal subjects, Helsinki Declaration, informed consent, and patient release of information? • Does the journal commit to follow the guidelines of the International Committee of Medical Journal Editors (ICJME) and Committee on Publication Ethics (COPE)?
Publishing Agreement
<ul style="list-style-type: none"> • Is the agreement explicit, transparent, and fair? • Is it easy to find on the journal website? • Is copyright ownership, transfer, and licensing clear and fair and meet your needs?
Article Processing Fees
<ul style="list-style-type: none"> • Are the fees for submission or publication clear in the Information for Authors? • Is the fee to publish too low? Most major legitimate open access journals charge greater than \$1,000¹⁴ • Is it clear what the author gets in return for paying the fee? What rights does the author retain for other uses of the published material? Read the publisher's copyright agreement to see this information.

ing from legitimate to predatory).¹² NLM supports practices outlined by COPE, International Committee of Medical Journal Editors (ICJME), Council of

Scientific Editors (CSE), and National Information Standards Organization (NISO). Indexing in MEDLINE means your published article will be searchable

Table 4. Resources on Publishing Ethics Guidelines and Predatory Journals. (All links accessed July 6, 2018.)

Resource Name	Tool to Assess Journals	Notes
Committee on Publication Ethics (COPE)	COPE Digest: Publication Ethics in Practice.	Established 1997. Over 12,000 publishers and journals. Published ethical guidelines and provides ethical consultation to editors, publishers, authors, and reviewers. Browse or search cases involving predatory journals and related ethical issues (https://publicationethics.org/cases).
https://publicationethics.org	https://publicationethics.org/cases	
Directory of Open Access Journals (DOAJ)	What is the DOAJ Seal of Approval for Open Access Journals?	Started in 2003 at Lund University, Sweden.
https://doaj.org	https://doaj.org/publishers#seal	Over 10,000 journals, publishers, editors, universities, and libraries. Published ethical guidelines. Not inclusive: e.g., does not include <i>Journal of the American Board of Family Medicine</i> , <i>Family Medicine</i> , or <i>Annals of Family Medicine</i> .
Open Access Scholarly Publishers Association (OASPA)	HowOpenIsIt?	Established 2008 with supported of Wellcome Trust. 133 journal and book publishers, related organizations. Published ethical guidelines. Example members: BioMed Central, Public Library of Science (PLOS), DOAJ, and CLOCKSS Archive.
https://oaspa.org	https://www.plos.org/how-open-is-it	
World Association of Medical Editors (WAME)	Identifying Predatory or Pseudo-Journals.	Established 1995. Global association of editors of peer-reviewed medical journals. Published ethical guidelines.
http://www.wame.org	http://www.wame.org/identifying-predatory-or-pseudo-journals	
Think Check Submit	Reference this list for your chosen journal to check if it is trusted.	Founded 2018 by BioMed Central, COPE, DOAJ, OASPA, and others. Tool available in many languages.
https://thinkchecksubmit.org	http://thinkchecksubmit.org/check/	
National Library of Medicine	NLM Catalog: Journals referenced in the NCBI Databases	Journal information and whether it is indexed in MEDLINE, PubMed, or PubMed Central. Look for the phrase "Currently indexed for MEDLINE."
	https://www.ncbi.nlm.nih.gov/nlmcatalog/journals	
Journal Citation Reports	https://jcr.incites.thomsonreuters.com/	In general, a higher number of journal citations is associated with legitimate journals.

on PubMed. PubMed index is worthwhile, but falls short of MEDLINE standards. PubMed Central (PMC) is a NLM digital repository that includes publications and databases with looser criteria. Google Scholar can be a useful search tool, but it has been known to include articles from predatory journals.¹³

Summary

We all share responsibility for addressing the threats of predatory publishing. Authors can avoid submitting work to such journals, even if promised

sure acceptance and prompt publication. Readers can be vigilant when assessing the sources of published reports. Journal editors can check submitted manuscripts for duplicate publication, refuse to consider work already published in predatory journals, and carefully review article references before publication. Reviewers should be suspicious of requests from unfamiliar journals and refuse involvement with predatory journals and publishers. Professional organizations that sponsor journals can renew their commitments to quality, control, and access. Investigators can write grant

budgets to include processing fees for publication in reputable journals. Academic institutions can restructure their criteria for academic advancement to favor quality over quantity of scholarly publications.

What is at stake is the soundness of our science, the quality of our scholarly literature, and the public's trust in our work.

We thank the organizations that sponsor our journals and their members who recognize the value scientific journals bring to their patient care, education, policy, research, organizations, and specialty. JABFM: American Board of Family Medicine, Inc. FM: Society of Teachers of Family Medicine. AFM: jointly sponsored by the American Board of Family Medicine, Association of Departments of Family Medicine, Association of Family Medicine Residency Directors, College of Family Physicians of Canada, North American Primary Care Research Group, and Society of Teachers of Family Medicine.

To see this article online, please go to: <http://jabfm.org/content/31/5/671.full>.

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