Open Access (OA) publishing makes articles available over the Internet at no charge. The OA movement had its official start in 2002 with the establishment of the Budapest Open Access Initiative. The goal of the OA movement is to remove access barriers, accelerate research, and thereby achieve its broader mission of promoting global welfare. The OA movement has made swift progress over the past decade, but has introduced a disruptive change into the scientific community. The early stages of OA publishing have raised strong apprehensions, such as reliability concerns and the emergence of so-called predatory journals. The OA initiative is both inspiring and unsettling. For the discipline of forensic psychiatry, research findings must be reliable enough to be proffered as testimony in court. The methods used by OA publishing make the resolution of the reliability problem somewhat unclear. Nevertheless, given the momentum of OA publishing, a substantial change in traditional publishing appears inevitable. The discipline of forensic psychiatry must keep abreast of this change and find innovative methods of preserving the integrity of the forensic science database.

With the prophesied death of print media looming, and a steadily increasing number of scholarly journals converting to online publications, the future of forensic print publishing seems ambiguous. Even now, forensic science journals are converting to exclusive online publications, and some have adopted open access (OA) models, making articles available without cost to anyone with Internet access. This article gives an introduction to OA publishing, its associated advantages and disadvantages, and the emerging controversies surrounding the phenomenon. It concludes with a discussion of open access publishing in the forensic sciences.

Open Access

The first online free journals emerged in the 1980s and 1990s and later came to be known as open access journals. Today, OA journals are scholarly publications that are available online “free of price barriers and permission barriers that normally limit access and usage of all published literature to only subscribed or licensed journals.”

The official beginning of the OA movement came in 2002 with the establishment of the Budapest Open Access Initiative (BOAI). The purpose of the initiative was to provide in all academic fields “world-wide electronic distribution” of literature that is “completely free and unrestricted.” The goal was to remove “access barriers” to accelerate research, and “lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge.” The BOAI defined OA as the availability of academic literature on the public Internet, without financial, legal, or technical barriers. Since the BOAI, and particularly over the past decade, OA journals have been steadily increasing in number.

Before the OA movement, researchers accessed journals free of charge via their institutions, perhaps taking for granted the fact that their institutions had already contracted (at significant cost) for the use and reuse of published content. In contrast, OA journals allow unrestricted access and unrestricted reuse. In the slowly diminishing world of the printed word, access to content requires payment. In the world of OA, this cost burden is sometimes shifted to the authors themselves. Whereas some OA journals are subsidized (e.g., via academic or government institutions), many require the author to pay a submission fee. These fees can range widely, from approximately $400 to $4,000 per submission.
Publishers of OA journals stress the virtue of enabling easy, global access to all researchers. Publications may be downloaded and reused freely. There are no constraints with copyrights, although authors continue to receive credit and citation for their work. Yet at this relatively early stage, academicians may remain skeptical of the quality of the content published in OA journals. In particular, there is concern about the potential lack of a traditional, rigorous peer review process. OA proponents counter this criticism, believing that the process “allows interactive discussions and reviews by being open to all interested members of the scientific community and the public.” In fact, the OA movement has the potential to transform the peer review process significantly in a variety of ways. For example, some OA journals have instituted an “open peer review” process in which reviewers’ names are included in peer review reports. Further, if the article is published, the reviewers’ reports are made available online with the final version of the article. This process makes transparent virtually the entire prepublication history of the article. Another variation on OA peer review is a two-stage process in which a prepublication short-term assessment by designated reviewers precedes a postpublication long-term assessment by the scientific community. Early research into the effects of open peer review suggests possible advantages in accountability, fairness, and crediting reviewers for their efforts.

One prominent OA publisher, the OMICS Publishing Group, defines an OA Publication as one in which:

...the author and copyright holder grant to all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works in any digital medium for any responsible purpose, subject to proper attribution of authorship, as well as the right to make a small number of printed copies for their personal use [Ref. 11].

OMICS states that “community standards, rather than copyright law,” should enforce the “proper attribution and responsible use of the published work.”

One aspect of OA publishing that may cause forensic researchers to be hesitant to embrace it is the wide and complex range of formats. These various formats are often particular to the publisher’s mission and policies. The range of formats may have the effect of making the OA publishing landscape more difficult to navigate and to study from a reliability and impact factor standpoint.

Range of Publication Formats

From a broad perspective, there are two methods of providing OA: the “green road” (self-archiving), and the “golden road” (publishing in an OA journal). Self-archiving refers to depositing a free digital copy on the Web. With self-archiving, a scholar may self-publish unreviewed (not peer reviewed) preprints or refereed postprints. The self-archived article is most commonly deposited in the author’s own institutional repository to maximize accessibility and citation.

In contrast, the golden road “involves a shift from the current subscription-based approach to one in which authors (which in practice means their institutions) pay to cover the costs of (open access) publishing.” Articles published via the golden road are nevertheless accessible on the journal’s web site where they can be downloaded free of charge.

Within the format of the OA journal, there are further variations. In essence, the format type hinges on whether the OA journal is entirely open access or a hybrid of other options. For example, OA journals have been described as falling into different categories, those that are entirely open access, those that are hybrid open access (some research articles are not open access), those that charge publication fees, and those that do not. The Journal of the American Academy of Psychiatry and the Law has a somewhat unique publication format, in that it is an OA journal that has maintained the traditional peer review process. Author fees have never been charged by The Journal; its publishing enterprise is supported by AAPL membership dues.

Advantages and Disadvantages

At the present time, the pros and cons of OA publishing are subjects of contentious debate. A prominent past concern has been that the quality of scientific publishing will be degraded by the lack of a traditional peer review process. However, the past several years have seen OA journals use traditional peer review, as well as innovative and interactive models that connect scholars in a transparent process of addressing critiques. In addition to reliability concerns, there are concerns about the potential for “predatory” OA journals (described below) and the possibility that author
submission fees may lead to a biased output from authors of greater financial means.

Another disadvantage is that many of the newer OA journals simply do not enjoy the reputation of subscription journals, particularly those that have been in publication for decades or more. One possible and relatively recent exception is the PLoS journals. The Public Library of Science (PLoS) is a nonprofit OA scientific publishing project that has created a library of OA journals under an open content license. The first PLoS journal (PLoS Biology) was launched in 2003; by April 2012, PLoS had seven peer-reviewed journals.

OA publishing advantages include free access and the absence of a need for an affiliation with a subscribing library. OA publishers sometimes boast the advantage of higher citation rates; however, at present it is unclear whether OA has produced higher citation rates than subscription journals. Other advantages that are claimed for OA publishing include promoting the global welfare of the scientific community, accelerated discovery, and enhanced dissemination.

Additional claims have been made regarding difficult-to-measure benefits, such as public enrichment and improved access to education for students worldwide. From an ethics standpoint, it has been suggested that OA publishing results in more rapid scientific progress because the traditional subscription model is inherently conservative and thus has the potential to constrict intellectual freedom. In addition, the argument has been raised that the subscription model is exploitative, in that it requires publicly funded academics “to pay to access the fruits of their own academic labor.”

Potential drawbacks notwithstanding, the number of OA publishers is growing at a steady pace, making it difficult to assess a journal’s standing in the field, and perhaps most critically, the OA journal’s impact factor.

Open Access Impact Factors

The impact factor (IF), is a “measure of the frequency with which the average article in a journal has been cited in a particular year or period.” The IF of a journal is calculated by dividing the number of citations shown in the Journal Citation Reports for a particular year by the total number of articles published in the two previous years. It is a widely used journal evaluation tool provided by the publisher Thomson Reuters. In essence, the IF is a reflection of the average number of citations of recent articles published in a journal. Thus, the higher the IF, the higher the journal’s relative importance in the field.

A current challenge for OA publishing is that there is no consensus about how to measure the IF of an OA journal. Further, information about an OA journal’s IF may or may not be in the public domain. Web sites that rank the IF of OA journals are growing in sophistication and ability to measure OA citations. Yet the problem remains that different sites use different citation-based metrics and directories, leading to various lists of OA journals.

Controversies

The methods of publishing and advertising for OA journals have led to several areas of controversy, if not concerns about outright fraud and scamming. So-called predatory online journals seek to lure eager scholars into handing over processing or submission fees with little or no intent of publishing the scholar’s work. Such OA journals have been defined as exploiting “the author-pays model of open-access publishing (Gold OA) for their own profit” (Ref. 24, p 792, and Ref. 25)

There is now concern that the rise of OA publishing has created a cottage industry of unscrupulous publishers who are becoming increasingly clever in their ability to set up fraudulent web sites that promise very rapid, peer-reviewed publication. One academic researcher and librarian has followed and studied the phenomenon and has created an online list of predatory journals.

The rise of the predatory journal has created concerns other than fraudulent profit. For example, universities may be challenged with assessing the legitimacy of resume’s listing publications in suspect journals. In addition, some predatory journals may falsely claim well-known academicians on their editorial boards, and in some cases it may be difficult for such individuals to have their names removed from the fraudulent web site.

At the present time, scholars wishing to publish in OA journals must largely take it upon themselves to avoid scams. Tips for avoiding fraudulent OA journals are listed in Table 1.

Another area of controversy in OA publishing is that unscrupulous publishers may create a vanity press, which authors simply pay to have their work published, regardless of quality. In fact, the author
submission fee in OA publishing is the subject of some controversy, with some journals charging fees as high as $4,000 or more. It is assumed that the author’s academic institution would shoulder this financial burden. However, some authors will inevitably have greater financial resources at their disposal, seeming to undercut the OA publishing claim of providing fair access to underdeveloped areas of the world. It should be noted that there are some mechanisms potentially available to help defer submission fees, such as some university library’s sponsored funds for covering such costs.31 In addition, the Open Society Institute is a philanthropic foundation that proposes assistance with OA journal funding.32

A related controversy involves the practice of research funding agencies requiring grantees “to publish in gold open access journals...allowing authors to pay the fees with money from their research grants or with funds allocated by the agency” (Ref. 33, p 426). Such a policy could create disputes, particularly in times of limited resources.34 In the future, should most of the grant funding agencies make a grant award contingent on OA publishing, then it would seem reasonable to implement this option for traditional publications, lest they be eliminated as publication venues for certain types of research.

OA may be embraced fully into the scientific community when a stable, viable, and fair online business model develops that both preserves and advances the scientific record. The proper business model to ensure the continuity of the scientific record is another point of debate. In the meantime, it is possible that the peer-reviewed subscription model will experience a period of destabilization. Other areas of OA controversy involve legal concerns. There remains a lack of clarity around such matters as “ownership of intellectual property, licensing, embargo periods, consent, copyright expiration of older literature, fair use policies, indexing and archiving, and preservation of works” (Ref. 35, p 491).

**Open Access Publishing in Forensic Science**

OA publishing in forensic psychiatry confronts the challenges that traditional publishing in the forensic sciences face: the highly specialized nature of forensics, and the relatively low IF scores attained by forensic journals. On the Journal Citation Reports database, forensic journals tend to be grouped within a subject category entitled Medicine, Legal. The top-ranked forensic journal in 2004 was the International Journal of Legal Medicine with an IF of just over 2.0 in 2004. The IFs of forensic journals have been relatively low in comparison with those of journals in other disciplines, and it has been hypothesized that the discrepancy is due to the field’s subspecialized nature and small size.

### Table 1 Avoiding Predatory OA Journals22,23,25

- Google the journal’s title to see if the first hit is the journal’s web site or a blog warning of fraud.
- Check to see if the journal or publisher appears in Beall’s List of Predatory Publishers.25
- Carefully review the journal web site for its editor and editorial board members. If in doubt, consider contacting editors to ask if they are aware of the journal.
- Consider how transparent the journal web site is about author fees and peer review.
- Find out if the journal has actually published any papers. If so, read several to assess their quality.
- Contact past authors to ask about their experiences.
- Consult Journal Citation Reports to see whether the journal has an IF or similar citation index and how high it is.
- Check to see if the journal is listed in the Directory of Open Access Journals.
- Check to see if the journal is listed in mainstream library journal databases. (If it is new, it may not yet be listed.)
- Check to see if the publisher is a member of the Open Access Scholarly Publishers Association, which is in the early stages of standardization.
- Be suspicious of overly broad interdisciplinary journals. It is unlikely that an editor will have the expertise to find competent reviewers across a range of scholarship that is too broad.
- Check that a journal’s peer review process is clearly described.
- Be suspicious of journals claiming extremely rapid peer review (e.g., one week). Few high-quality journals can provide such expedited peer reviews.
- Check that the publisher provides verifiable contact information, including address, on the journal’s web site. (Be cautious of those that provide only web contact forms.)
- Confirm that the journal prominently displays its policy for author fees.
- Be wary of e-mail invitations to submit articles or become an editorial board member.
- Seek guidance from a reputable librarian with knowledge of OA publishing.
The trend of low IFs is expected to improve, particularly with globalization and the increasing attention that is being given to bibliometric analysis of biomedicolegal research. In a 2011 analysis of forensic science publications by European authors on a PubMed database, IFs were found to range from 1.67 to 2.81. The most frequently published topics were the description of new analytical methods in forensic toxicology (5.7%), the analysis of short tandem repeat systems (5.6%), and injury mechanisms in forensic pathology and clinical forensic medicine (4.9%).

A 2012 bibliometric analysis found that psychiatry is among the forensic subjects commonly published in less well-known journals that are outside of the traditional bio-medicolegal sources of publication. Indeed, publications in the subdiscipline of forensic psychiatry are frequently found in journals without an IF. The authors of the analysis noted that the fragmentation of forensic knowledge has resulted in “a proliferation of ultra-specialized sub-disciplines and branches, often published in ‘field-oriented’ scientific journals” (Ref. 36, p 129). Thus, one challenge for forensic psychiatric publishing, be it OA or traditional, is to overcome the problem of low IFs and dispersion into journals not related to forensics. When important forensic publications are scattered throughout journals that do not have a primary focus on forensics, they may not be captured by search engines or quantifying databases.

OA publishing in the forensic sciences will certainly become a major interest for all forensic-related fields in the years to come; however, at present it is a relatively underdeveloped area. My search of the tables on the OMICS database of the 50 highest ranked OA journals (ranked by Scientific Journal Ranking and Impact Factor) found that none was focused on forensic science at the time that this article was written. This lower rank for the journals in the forensic sciences seems likely to change, and there is already a “peer-reviewed journal created by and for forensic psychologists”: the Open Access Journal of Forensic Psychology. Another interesting development is the creation of Internet search tools that are specific to OA forensic psychology journals.

Increasing attention has been given to research in the field of forensic psychiatry, specifically by AAPL. It can be argued that research will become a critical function of AAPL’s mission in the years to come. Should experts begin to rely increasingly on forensic psychiatric research citations in their reports and testimony, a journal’s reliability and reputation are likely to receive greater scrutiny. Given the current uncertainties regarding OA publishing and the relatively low IF of forensic journals, it remains to be seen how conclusions and opinions published in forensic science journals, let alone OA forensic journals, might one day be proffered as evidence in criminal or civil litigation.

While Daubert criteria allow for the introduction of new methodologies meeting its standards, it seems that OA forensic journals have some ground to gain in ensuring reliability. For OA publishing in forensics to overcome this challenge, it must set an agenda of conforming itself to relevant standards (e.g., the Open Archives Initiative) so that search engines can effectively reach them for further evaluation of their IF.

**Table 2** Open Access Publishing

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<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
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<tr>
<td>Promotes global welfare of scientific community</td>
<td>Reliability concerns</td>
</tr>
<tr>
<td>Accelerated discovery, dissemination</td>
<td>Financial incentive bias (vanity press)</td>
</tr>
<tr>
<td>Ease of use</td>
<td>Impact factors uncertain</td>
</tr>
<tr>
<td>No subscription fees</td>
<td>Possible predatory/fraudulent journals</td>
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<tr>
<td>Reduced production costs</td>
<td>Author submission fees</td>
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**Conclusions**

The defining difference between OA and traditional journals is that OA journals are published exclusively online and with free access to scholars and the nonacademic public. Whether unrestricted availability has led to more frequent citations for OA journals is still a matter of debate. In addition, the reliability of the impact factor, the main tool for evaluating a journal’s importance in the field, remains uncertain for OA journals. A brief summary of the current pros and cons of OA publishing is given in Table 2.

As the BOAI has noted, there is growing “incentive for professional associations, universities, libraries, foundations, and others to embrace open access as a means of advancing their missions.” Yet fully embracing OA will require new models of cost recovery. At this point, it seems that the OA movement and OA publishing have gained substantial momentum and popularity. OA publications are also slowly
gaining academic respect, as in the case of the PLoS journals. Support from government, educational and research institutions can be expected to continue, and many scientists place a high value on OA and its mission of promoting global welfare.

The OA initiative is inspiring, yet troubling, particularly in the discipline of forensic psychiatry, which must ensure that its research findings are sufficiently reliable to be proffered as testimony in court. The methods used by OA publishing make the resolution of the reliability problem somewhat unclear. Surely, advancing technology and sophistication of bibliographic databases can be expected to overcome the problems of inconsistent determination of IFs.

The problem of predatory or fraudulent journals is not an unexpected risk of any initiative that is in its initial expansion phase into a broad new territory. To use an ecological metaphor, when the edges of an ecosystem are expanded, the adjoining areas create an open boundary consisting of increased variety and uncertainty. The disruptive change can encourage the growth of parasitic species in the area of new ecological junctions, a phenomenon known as the edge effect. Since the bottom line for academics is to publish in journals that have quality and rigor, reliable methods of identifying and controlling the predator population within the academic ecosphere will remain a priority for OA publishing.

The OA movement appears to be gaining momentum. OA journal publishing increased rapidly between 2000 and 2009. The Directory of Open Access Journals (DOAJ), an online directory that indexes and provides links to open access journals, lists 9,841 journals from 134 different countries. Although the traditional subscription model is currently the standard in much of medicine and forensics, OA has clearly introduced a disruptive change in the scientific community. As OA journals continue to appear, this phenomenon must be taken seriously, since it affects the scientific record as a whole.

Certainly, both traditional and OA models can produce content of high quality, and both may be vulnerable to exploitation or substandard science.

The Journal currently occupies a unique place in OA publishing. It could be argued that it offers the best of both worlds: free Internet access and traditional peer review without the controversies associated with author submission fees. Thus, The Journal may be considered a distinctive model, especially in the realm of forensic OA publishing, and this is owed in large part to AAPL members, as well as AAPL educational and scientific missions.

Given the swift progress of OA publishing over the past decade, the rising costs of subscription-based journals, and the increase in research grantees requiring OA publication, a substantial change in traditional publishing appears inevitable. Indeed, it appears to be a case of tradition versus scientific innovation. If history serves, the outcome of such clashes tends to favor scientific innovation, or at the very least, an irrevocable change in prior traditions.

Acknowledgments

The author wishes to acknowledge the invaluable expert assistance of Amy R. Slutzky, PhD, MSLIS, of the Health Sciences Library at SUNY Upstate Medical University.

References


