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How can a questionable journal be identified: frameworks and checklists

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Abstract
Questionable journals represent an increasing problem in the scholarly communication. The warnings against questionable journals are plentiful but how do we reliably identify the questionable journals? The aim of the present article is to present an overview of the existing frameworks for identifying questionable journals. Most of the frameworks rely on describing the journals under investigation according to a set of criteria and some can even be turned into a metric or mechanism. The development of frameworks for identifying questionable journals has so far been characterised by a great diversity in format, length, and content. Generally, the frameworks come with little information on development, validation, and reliability. The consequences of the prolific tool development are discussed.

Keywords: Predatory journals, deceptive journals, counterfeit journals, fake publishers, questionable journals, checklists, evaluation frameworks, quality assessment

Introduction
The internet has fundamentally changed the publishing of scholarly peer reviewed journals and has made it possible to share research in entirely new ways. The radical transformation of scholarly publishing was set off by the introduction of computerised networks, although, Willinsky (2006: 30) notes that the “open access idea is not just a child of these new publishing technologies”. The first free, online, peer reviewed journals appeared in the late 1980s. Since then
the amount of scholarly publications freely available on the Internet has grown considerably (see e.g. Björk, Welling, Laakso, Majlender, Hedlund & Guðnason, 2010). However, the explosion of open access journals in recent years has an unintended by-product in the form of a growing number of questionable journals.

Increased amounts of e-mail solicitations from publishers was the first indication of the introduction of new publishers that took advantage of the opportunities that came with the changes in the scholarly publication system. According to (Beall, 2016b, p 2) “their practice of spamming […] has reached epidemic proportions, with researchers sometimes receiving several spam e-mails from scholarly publishers every hour”. The questionable journals are exploiting the open access publishing model to make profits by charging fees from authors offered to publish in journals with little or no peer review.

“Predatory journal” is a term coined by Jeffrey Beall who created an online list of questionable publishers and standalone journals. Beall used a number of criteria to determine if a publisher of standalone journal can be characterised as questionable. The criteria are classified into 5 groups (Beall, 2015):

- Editor and staff
- Business management
- Integrity
- Other
- Poor journal standards / practice

Scientific communities across fields and countries have discarded the questionable journals and warn scholars against publishing in such journals (Anthony, 2015; Betz, 2016; Clark & Smith, 2015; Fitzpatrick, 2015; Flanagan, 2015; 2015; Kmietowicz, 2009; Moher & Moher, 2016). However, the identification of questionable journals is no mean feat. Questionable journals publish without real peer review and regardless of the article quality, implying that many low-quality articles are published in predatory journals. However, high-quality papers may also be published in questionable journals just as low-quality papers occasionally appear in traditional subscription-based journals. Article processing fee is a characteristic of the questionable journal but also for open access journals in general. The number of journals in a research field often is too great to allow for in-depth knowledge of them all, scholars need tools to determine whether a journal is questionable.

The list by Beall has been widely used and recommended by many (Bowman, 2014; Clark, 2016; Dadkhah, Lagzian & Borchardt, 2017; Graziotin, Wang, & Abrahamsson, 2014; Masten & Ashcraft, 2016). Yet, Beall has taken down the list and even though the list is still available online
it is only in versions that are no longer updated by Beall (Watson, 2017). Despite being missed by some (e.g. Strielkowski, 2017) the list has been the centre of some controversy and is not without its critics. Concern have been expressed about some of Beall’s criteria, and about some of his judgements (e.g. Al-Khatib, 2016; Berger & Cirasella, 2015).). Other lists have been developed as e.g. DOAJ (doaj.org) and Cabell (www2.cabell.com) maintain black- and/or whitelists. The use of black- and whitelists is not without its critics either as false negatives and positives may occur on these lists for various reasons (e.g. da Silva & Tsigaris, 2018; Manca et al, 2018). Bagues, Sylos-Labini, & Zinovyeva (2019, p. 472) questions the “mechanical use of whitelists and blacklists in evaluation processes”. Instead of relying on a blacklist, some recommend authors to do the evaluations themselves (Berger & Cirasella, 2015; Bloudoff-Indelicato, 2015). WAME suggests that researchers use several of the existing list and frameworks (e.g. Beall’s list, DOAJ) before performing the evaluation themselves (Laine & Winker, 2017). Regardless of doing the evaluations yourself or relying on other’s evaluation a set of criteria or a framework is necessary.

Existing frameworks

There is a remarkable diversity in the number of criteria suggested to be used for the identification of questionable journals as well as the content of the criteria. Some of the models are relatively simple. An example of a short set of advice is offered by Singh and Remenyi (2016) who consider them heuristics:
- Research the journals in the field of study
- Typographical errors, spelling mistake or grammatical mistakes
- Fees and especially fees paid in advance

Some frameworks for identifying questionable journals focus more on technical aspects (Sorooshian, 2016):
- Domain Page ranking
- Website domain lifetime
- Availability of previous numbers
- Call for papers

There are also models relying more on knowledge of indexing. Asadi, Rahbar, Asadi, Asadi, & Khalili Paji (2017) presents what they call four simple and subtle approaches to evaluating a journal:
- Using the Master Journal List: Web of Science
- Using Scopus Database
- Using Papers’ DOI
- Using Whois Website
As we can see, a number of simple models exist; however, they are surprisingly diverse in their approach and we therefore turn to the more complex models.

**Characteristics and criteria**

Cobey et al. (2018) finds as many as 109 different characteristics from 38 empirical studies, however, many are unique (about 40 percent) and overlapping. Eriksson and Helgesson (2016) finds 25 characteristics. Shamseer et al. (2017) identify 13 characteristics that differentiate potential predatory (or illegitimate) journals from presumed legitimate journals. The complex frameworks cover many different aspects of journal characteristics, however, there are some common components. The following are some of the most common criteria, but as already mentioned there is a great variety and more exist.

Several of the models recommend authors to be aware of the type of copyediting and proofreading. Many spelling errors and typos are suggested to indicate a questionable journal (Beall, 2016a; Cabells, 2019; Hansoti, Langdorf & Murphy, 2016; Jalalian & Mahboobi, 2014; Mehrpour & Khajavi, 2014). The justification is that questionable journals pay less attention to spelling errors and typos.

Another common element is the call-for-papers solicitations emailed directly to researchers. The majority of lists warn against submitting to a journal that sends out call-for-papers via e-mail. (Beall, 2016a; Butler, 2013; Dadkhah, Maliszewski, & Lyashenko, 2016; Hansoti, Langdorf & Murphy, 2016; Jalalian & Mahboobi, 2014; Ward, 2016).

A substantial amount of the more complex models recommends authors to be aware of the composition of editorial board members. It relates to their academic status, the number of board members, their geographic location and their contact information (Butler, 2013; Cabells, 2019; Dadkhah et al., 2016; Hansoti, Langdorf & Murphy, 2016; INANE Predatory Publishing Practices Collaborative, 2014; Mehrpour & Khajavi, 2014; Olijhoek, Bjernshauge & Mitchell, 2015; Ward, 2016). This criterion assumes that questionable journals tend to have few board member, typically concentrated in a certain country, with little or no contact information and with low or no academic status.

Age of the journal / access to previous articles is also something several models recommend authors to take note of. Recently started journals or journals that do not allow for access to previous articles could be a warning sign (Graziotin et al., 2014; Jalalian & Mahboobi, 2014; Ward, 2016). As the questionable journals per definition are open access the previous articles should be readily available on the journal website.
Advertising impact factors is worth considering according to several frameworks as many questionable journals advertise with fraudulent impact factors (Cabells, 2019; Dadkhah & Bianciardi, 2016; Hansoti, Langdorf & Murphy, 2016; Ward, 2016). In some cases, bogus impact factors from well-known databases are provided and in other cases the impact factors are calculated using non-existing databases.

The associated publisher can also indicate that the journal is questionable according to several frameworks as some questionable publishing houses run several or even many questionable journals (Butler, 2013; Hansoti, Langdorf & Murphy, 2016; Mehrpour & Khajavi, 2014; Moustafa, 2015). Beall’s list contained both standalone journals as well as a list of questionable publishers. Shen & Bjork (2015) finds that publishers with more than 100 journals dominated the market in 2010 and a few years later publishers with 10–99 journals have dominated the market for questionable journals.

Design and layout of the website is also included in several frameworks suggesting that poorly layouted websites are more likely to be representing questionable journals (Hansoti, Langdorf & Murphy, 2016; Jalalian & Mahboobi, 2014; Mehrpour & Khajavi, 2014).

Type, style and speed of the peer review report are also criteria for identification of a questionable journal as they are more likely to have speedy, very short or non-specific peer review (Cabells, 2019; Dadkhah et al., 2016; Hansoti, Langdorf & Murphy, 2016; Jalalian & Mahboobi, 2014; Mehrpour & Khajavi, 2014; Olijhoek, Bjørnshauge & Mitchell, 2015; Ward, 2016).

The charging of money is of course an issue included in most of the frameworks. The criteria do, however, cover different aspects of the charging of money. There are huge differences between the consequences for the submitting authors in regard to paying submission fees, publication fees, fast track fees and handling fees. In some cases, the authors are even being asked to pay multiple fees (e.g. both a submission fee and a publication fee). A compromise would be to let authors know that they should be careful when paying a journal in advance of publication (Butler, 2013; Cabells, 2019; Dadkhah et al., 2016; Graziotin et al., 2014; Hansoti, Langdorf & Murphy, 2016; Mehrpour & Khajavi, 2014).

Finally, indexing in databases such as DOAJ, Web of Science or PubMed is also part of several models. Consequently, this is also a way to assess whether or not the journal is genuine as many questionable journals are only visible in Google Scholar, but not in any of the quality-assured databases (Butler, 2013; Cabells, 2019; Graziotin et al., 2014; Esfe, Wongwises, Asadi, & Akbari, 2015; Jalalian & Mahboobi, 2014; Mehrpour & Khajavi, 2014; Ward, 2016).
Criteria for identifying questionable journals such as the abovementioned has been suggested to be turned into a metric to determine whether or not a journal is questionable: “There is immediate need to develop a mechanism to identify such predatory publishers and blacklist them” (Raju, 2013, p 1462). A tool for hijacked journals exist (Dadkhah & Borchardt, 2016) as well as questionable journals (Dadkhah & Bianciardi, 2016). The criteria are rated using weights, the values are then summed, divided by n, where n is the number of all criteria (in this case 14). Hence, the predatory rate (PR) is a number 0 and 1. The authors suggest the following interpretation of PR: If PR is equal to 0, it means that the journal is not a predatory one. If PR is higher than 0 and lower than 0.22, the journal uses predatory practices. A PR higher than 0.22 indicates that the journal is predatory (Dadkhah & Bianciardi, 2016, p 2). The checklist effectively becomes a scale.

**Discussion**

Shamseer et al. (2017) argue that researchers in general may not be able to distinguish a legitimate journal from a questionable. Researchers need to be able determine if a journal is legitimate as authors now pay for publishing instead of readers, however, as argued by Bagues, Sylos-Labini, & Zinovyeva (2019, p. 463) “the proliferation of predatory publications may reflect the existence of severe information asymmetries in the evaluation of science”. They argue that there is a need for to supplement the use of lists with knowledgeable evaluators.

The checklist or mechanism approach for distinguishing fake from genuine journals has also been questioned by e.g. Moustafa (2015) arguing that genuine journals share many characteristics with fake journals as genuine journals for example aim to make speedier publishing decisions and to develop simpler and quicker submission forms. He therefore argues that some of the criteria may not be able to help distinguish the genuine from the fake journal and states: “it is not the ‘form’ that matters, but the content.” (Moustafa, 2015, p 1391). He argues further that it is important to distinguish between fake and serious journals “beyond the form and the impression” (Moustafa, 2015, p 1392). Consequently, the identification of a predatory journal should not rely on questions regarding e.g. layout, spelling errors or age of the journal. The scientific content needs to be in focus. As suggested by Bisaccio (2018) some journal behaviours directly indicate deception whereas other behaviours only tend to coincide with deception.

The Cochrane handbook also stresses the need for distinguishing between reporting and conducting (Higgins & Green, 2011, 8.3.2.). Quality is not easily assessed due to incomplete reporting but emphasis should be on the conduct and not on the adequacy of reporting. Moher et al. (1995) speculate if checklists are better suited for advising on how to report instead of as an evaluation tool. In the case of journals, it may help editors and publishers to know what information should be available for potential authors.
So how do we proceed from here? Other fields have a long history for developing and revising frameworks for assessing quality of different study types, and we can draw on their experience to develop such frameworks. An example from evidence-based medicine deals with scales and checklists developed to assess quality of randomised controlled trials and finds that the identified scales and checklists differ in terms of how and why the items were selected for inclusion, the number of items, reliability, approximate time to complete, and scoring range. The authors argue the following:

"Even if the scales available vary in their size, complexity, and level of development, it would be useful to ascertain whether different scales [...] provide similar results. This information could guide quality assessors in their choice of scale. There would be little advantage in using a 20-item scale to assess trial quality if similar results could be obtained by using a 6-item scale" (Moher, Jadad, Nichol, Penman, Tugwell & Walsh, 1995, p. 69).

Consequently, the existing frameworks for identifying questionable journals may include several criteria that tend to coincide with deception and some that directly indicate deception. Future studies addressing this issue may contribute to more powerful frameworks for identifying questionable journals. Comparing frameworks would include issues such as inter-rater reliability, time to complete as well as whether different frameworks provide similar results. As argued by Streiner, Norman & Cairney (2015) most of the scales that have stood the test of time have been revised, re-tested, and tested again.

Prolific tool development is not unseen in other fields and there is typically pronounced variation in format, length, and content. Similarly, development, validation, and reliability are not consistently reported. However, strengthening the work with identifying the questionable journals relies on tool development, reliability and validation. We need to know if the developed tools can be used to analyse the phenomenon in a reproducible fashion (i.e. reliability) and we also need to know if the tool is measuring what is intended (i.e. validity).

There are a few examples regarding tools for identifying questionable journals. Dadkhah & Bianciardi (2016) use their set of criteria on three case studies and Olivarez, Bales, Sare and van Duinkerken (2017) applies Beall’s list on a set of journals (both open access and traditional subscription-based journals). Both examples apply a set of criteria and it is thus not possible to compare that set of criteria with other sets. Another example is a comparison of Beall’s list and the Cabell’s black- and whitelist (Bisaccio, 2018). The analysis is not reported in full detail; however, the author explains that the two lists overlap but are not identical. The author does not report on
the character of the differences. Consequently, the first steps have been taken in terms of developing validated tools, but much more work is needed.

The approach by Streiner and Norman (2014) may be adopted to develop a tool to identify questionable journals. They provide a roadmap or guide to summarize the process of scale construction and evaluation. Their procedure involves the following stages: (1) generate items; (2) test items; (3) revise items; (4) reliability and generisability studies; and lastly (5) validity studies. The frameworks to identify questionable journals would in particular benefit from reliability, generisability and validity studies.

**Conclusion**

The available frameworks for identification of questionable journals are characterised by an astonishing diversity in terms of the length of the frameworks as well as content of criteria. Generally, the frameworks come with little information on development, validation, and reliability.

The majority of the frameworks for identifying questionable journals rely on describing the journals under investigation according to a set of criteria, and some can even be turned into a metric or mechanism. The checklist approach has been questioned and in prominent quality assessment settings warned against. The available tools do not discriminate poor reporting from quality. Checklists may be appropriate for advising on how to report instead of as an evaluation tool, but the checklist approach offers limited guidance for quality assessment.

Furthermore, development, validation, and reliability of the frameworks are not consistently reported. There is no consensus on individual criteria of validity and ranking of overall quality. Future work on developing frameworks should include collaborative efforts on developing consensus on criteria and ensuring validation and reliability of identification tools for questionable journals.

Finally, rigorous development of frameworks as well as validation of existing frameworks would not only benefit authors investigating if a journal is genuine or fake but also inform the studies analysing questionable journals.
References


Watson, R. (2017). Beall's list of predatory open access journals: RIP. *Nursing Open, 4*, 60