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How is open access accused of being predatory? The impact of Beall's lists of predatory journals on academic publishing

Franciszek Krawczyk, Emanuel Kulczycki*

Scholarly Communication Research Group, Adam Mickiewicz University in Poznań, Poland

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ABSTRACT

The aim of this paper is to investigate how predatory journals are characterized by authors who write about such journals. We emphasize the ways in which predatory journals have been conflated with—or distinguished from—open access journals. We created a list of relevant publications on predatory publishing using four databases: Web of Science, Scopus, Dimensions, and Microsoft Academic. We included 280 English-language publications in the review according to their contributions to the discussions on predatory publishing. Then, we coded and qualitatively analyzed these publications. The findings show the profound influence of Jeffrey Beall, who composed and maintained himself lists of predatory publishers and journals, on the whole discussion on predatory publishing. The major themes by which Beall has characterized predatory journals are widely present in non-Beall publications. Moreover, 122 papers we reviewed combined predatory publishing with open access using similar strategies as Beall. The overgeneralization of the flaws of some open access journals to the entire open access movement has led to unjustified prejudices among the academic community toward open access. This is the first large-scale study that systematically examines how predatory publishing is defined in the literature.

Introduction

Science faces two challenges that are deeply rooted in academic publishing: open access (OA) to scientific knowledge and knowledge validation. The first challenge is driven by the desire for free access to the results of publicly funded research and a more equal relationship between scholars and publishers (Suber, 2012). The second challenge is caused mainly by the threat of pseudoscience, which contests established scientific knowledge using illegitimate methodologies (Hansson, 2013). Pseudoscience is represented by individuals such as homeopaths or climate change denialists, and, behind each case of pseudoscience, there are millions of corporate dollars and specially financed “research” institutes (Edzard, 2016; Oreskes & Conway, 2010).

There is no doubt that the discussion of each of those two quite different challenges is extremely important. In 2012, however, a new strong connection between two discussions on open access and knowledge validation was established. In a short article in *Nature*, Jeffrey Beall announced the rise of the new phenomenon of “open access predatory publishers”, describing publishers that are ready to publish any article for payment (Beall, 2012a). Only one year later, Beall directly blamed

OA advocates for helping “anyone who has unscientific ideas and wants to get these ideas into print” succeed (Beall, 2013a, p. 594). Beall created lists of predatory journals and publishers that began to be used as a yardstick in academic publishing. The discussion on predatory publishing developed rapidly, and, within a few years, more than 600 papers had been written on the subject.

Predatory journals and publishers have been described by Beall as “scammers” (Beall, 2013e) that deceive scholars to publish in them and do not follow basic publishing standards, such as peer review (Beall, 2016c). Moreover, these predators are responsible for a massive amount of spam sent to scholars' mailboxes (Kozak, Iefremova, & Hartley, 2015). Sometimes, predatory journals have fake editorial boards (Sorokowski, Kulczycki, Sorokowska, & Pisanski, 2017), or they use quasi-impact factors calculated in an unclear manner (Xia & Smith, 2018). Currently, scholars are trying to improve Beall's approach or redefine the whole concept of predatory publishing (Grudniewicz, Moher, & Cobey, 2019).

Is merging discussions on OA and knowledge validation to create the topic of predatory publishing valid? Many scholars have criticized Beall and his approach. Specifically, he was accused of a heavy bias against

* Corresponding author.

E-mail address: emek@amu.edu.pl (E. Kulczycki).<https://doi.org/10.1016/j.acalib.2020.102271>

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the OA movement, an unclear methodology for developing his lists, and blindness to the flaws of publishers using a subscription model (Bell, 2017; Crawford, 2014a; Olivarez, Bales, Sare, & vanDuinkerken, 2018). Nonetheless, no one has systematically examined how Beall has influenced the entire discussion on predatory publishing and how his approach has been implemented in other authors' works. A study by Kimotho (2019) summarized only a set of 30 papers written by critics of Beall. The only existing large-scale literature review by Cobey et al. (2018) focused on the predatory journals themselves and not on the assumptions or methods in the reviewed studies.

The aim of this paper is to investigate how predatory journals are characterized by the authors who write about such journals. When preparing this study, we did not explicitly focus on Jeffrey Beall, although we are aware that he is the one who invented the term. However, when conducting our study, we realized the importance of Beall to most of the publications on this topic, as he was mentioned in more than 80% of publications we analyzed. For this reason, using Beall's approach as the reference point for the discussion on predatory publishing, we could observe how topics related to OA and predatory journals have been conflated as well as where they remain separate.

By analyzing 280 papers on predatory publishing, we identified various strategies of combining the topics of OA and predatory publishing. We described strategies that Beall used, such as the over-generalization of the features of some journals, claiming that they represent the whole OA model. Most of these strategies were also found in other authors' writings, indicating Beall's profound influence on the whole discussion.

With this study, the aim is to increase knowledge about the possible connections between predatory journals and OA. Peter Suber stated in an interview that "the largest obstacles to open access are unfamiliarity and misunderstanding of open access itself" (Hulagabali, 2019). We believe that many strategies of combining OA and predatory publishing are unfair to OA, because they often focus too much on flaws of OA and sometimes even do not provide any strong arguments that such flaws are specific to OA publishing. However, not all the strategies we analyzed deserve such criticism. We argue that the starting point for assessing these strategies is to present them clearly. Contrary to scholars who perceive connections between OA and predatory journals as obvious, we aim to subject such connections to critical reflection.

This study is structured as follows: First, we present a short literature review of the discussion prior to Beall's work. Then, we describe the materials and methods of our study, and the steps for identifying the publications included in the present review of the discussion on predatory publishing. Next, we present the results of this study in three parts: an analysis of Beall's approach to predatory publishing ([Jeffrey Beall on predatory open access publishing](#) section); a presentation of the similarities and differences between Beall's approach and other authors' ([Strategies of combining predatory journals and open access publishing in non-Beall publications](#) section); and an analysis of other authors' attitudes toward Beall and his lists ("[No better list is available so far](#)": [Scholars' attitudes toward Beall's work and approach](#) section). Finally, we summarize the most important strategies and how they have shaped the discussion on predatory publishing and OA.

Review of literature prior to 2010

Since our entire paper is a review of the discussion on predatory publishing, in this section, we focus on reviewing the literature that emerged prior to the discussion on predatory publishing initiated by Beall's paper published in 2010. We focus on three different themes: (1) the internet as a mean of scholarly communication, (2) a discussion with lobbyists of subscription model journals; and (3) illegitimate peer review.

The discussion on the relationship between the quality of scientific papers and OA is older than the term "predatory publishing". In more general discussions regarding the internet as a way of obtaining

scientific information, various skeptical voices have shown that, beyond the certain advantages of the internet, there is also some possible danger in the validation of scientific knowledge. Silberg et al. mentioned that the internet "has the potential to become the world's largest vanity press" (Silberg, Lundberg, & Musacchio, 1997, p. 1244). The discussion at that time was, however, strongly related to familiarizing oneself with this new medium. Harnad (1996) pointed out that the early development of the World Wide Web was spontaneous, chaotic, and either non-professional enthusiasts as well as professionals were equally involved in it. He saw establishing a legitimate peer review process for internet publications as a perfectly reachable goal for the scholarly community in the coming decades.

Another concern about the quality of OA publishing was summarized by Suber (2007) a decade later, highlighting publisher trade associations and lobbyists who described OA as a danger to the peer review system. Their main argument was that subscription journals are the key basis for peer review to work properly and OA will make them unprofitable. Lobbyists also disseminated misleading information about OA giving the U.S. Government influence over the peer review process. Suber stated that such concerns are without merit, since OA politics fully support peer review and OA journals can have review systems equal in quality to those of subscription journals.

Prior to the discussion on predatory publishing, numerous papers aimed to show the weakness of the peer review process in certain journals or conferences. One of the most famous of these was Alan Sokal's hoax paper aimed at parodying postmodern jargon published in prestigious humanistic journals (Sokal, 1996). Also, in 2005, a computer-generated nonsensical paper by three students was accepted for an international conference (Ball, 2005). Such a paper could be published in conference proceedings, and the aim of the authors was to show that money was more important to the conference organizers than scientific merit. However, a discussion of such cases did not connect the failures of the peer review system with scholarly publication access. Moreover, in 2010, when Shamir (2010) was describing the case of the nonsensical computer-generated paper, he stated that "this example cannot be considered representative" (p. 4). This indicates that scholars were not aware at that time of any large-scale phenomenon of scholarly publishers being willing to publish any work without review.

Materials and methods

We aimed to only analyze publications on predatory publishing that aim to substantially contribute to the ongoing discussion. Two criteria guided the search for publications. First, a publication must be a scholarly book/chapter, journal article, or editorial. Second, the publication has to contribute to the ongoing discussion in English-language publications on predatory publishing. Although we are aware that analyzing only literature in English is a limitation of this study, we believe that the most influential publications on predatory publishing have been written in English. This is mostly due to the origin and rapid development of the discussion on predatory publishing being English-language publication-based (Butler, 2013).

This review aimed to cover all the relevant literature in English by focusing beyond the most known and cited papers (Webster & Watson, 2002). Therefore, we examined various sources during the literature search. We took a systematic approach to the review (Aveyard, 2008) and describe each step of the review process in this section.

Fig. 1 shows the scheme for the identification and inclusion of the publications used in this study. The identification of papers is described in [Identification of papers](#) section, the inclusion and exclusion of papers in [Inclusion and exclusion process](#) section, and the qualitative methods used for the text analysis in [Qualitative analysis](#) section.

Identification of papers

The identification process for all relevant publications meeting the

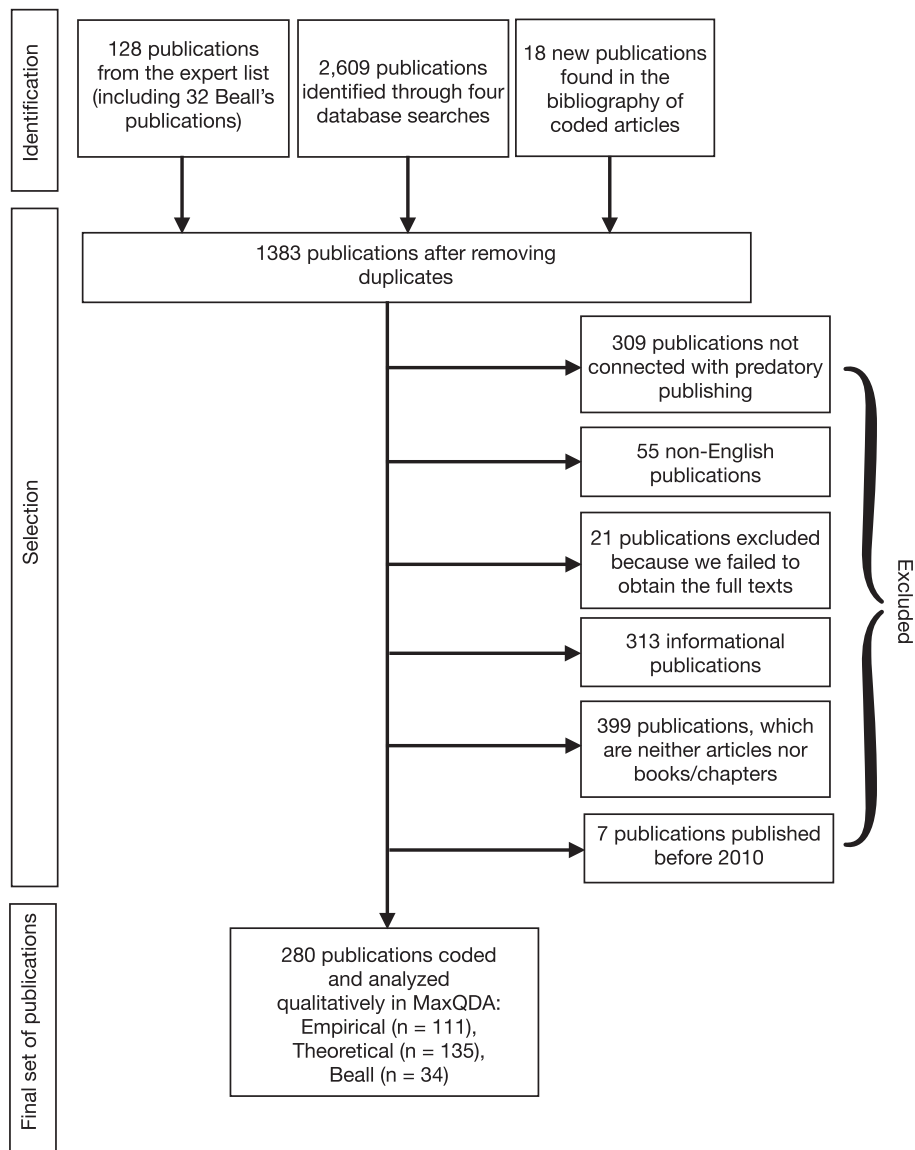


Fig. 1. Flow diagram of the process for identifying publications and including them in the review.

criteria for the literature review consisted of three steps. In the first step, we created the first version of an expert list of publications for the literature review. We started with a list of publications on predatory publishing prepared based on the expertise of the authors of this study. Additionally, using a Google Scholar profile of Jeffrey Beall, we added 32 relevant publications authored by Beall to the list, as he coined and popularized the term “predatory publisher.” Beall’s publications were included regardless whether they meet criterion of contributing to the ongoing discussion. Overall, the expert list consisted of 127 unique publications.

In the second step, we used the Web of Science (Core Collection), Scopus, Dimensions, and Microsoft Academic databases to find publications that met our criteria. In this way, we expanded the expert list and created a second version. The four selected sources represent the largest bibliographic metadata databases. Taking into account the large overlaps across these databases (Tsay, Wu, & Tseng, 2017, p. 201; Visser, Van Eck, & Waltman, 2019), we assumed that they would allow us to cover the majority of the papers for which we searched.

Based on our readings of publications from the initial expert list, we created the following set of key terms related to predatory publishing:

“predatory journal*” OR “pseudo-journal*” OR “pseudo journal*” OR “fake journal*” OR “predatory publish*” OR “pseudo-publish*” OR “pseudo publish*” OR “fake publish*” OR “predatory conferenc*” OR “pseudo-conferenc*” OR “pseudo conferenc*” OR “fake conferenc*” OR “fake peer review*” OR “fake peer-review*” OR “pseudo peer-review*” OR “pseudo peer review*” OR “pseudo-peer-review*” OR “pseudo-peer review*” OR “fake academia” OR “predatory open access” OR “fake metric*” OR “vanity press” OR “Beall’s *list” OR “Cabell’s *list” OR “Beall *list” OR “Jeffrey Beall” OR (Cabell AND *list) OR (Cabell’s AND *list) OR (whitelist AND journal*) OR (blacklist AND journal*) OR (whitelist AND publish*) OR (blacklist AND publish*) OR “deceptive journal*” OR “deceptive publish*” OR “deceptive conferenc*” OR “hijacked journal*.”

The key terms were adjusted to the search rules for each database. Then, we searched for these terms in the titles, abstracts, and keywords of the indexed publications. All searches were conducted between November 27 and 30, 2018. They resulted in 2609 records: 415 in Dimensions, 1083 in Microsoft Academic, 619 in Scopus, and 492 in the Web of Science. After removing duplicate records obtained during the identification process (from expert lists and searches in bibliographical databases), we identified 1365 unique publications.

During the third step, we identified an additional 18 publications by examining the references found in the papers that fulfilled the inclusion criteria for the review described in the next section.

Inclusion and exclusion process

All the papers were read and classified (if a publication did not have an abstract, then the full text was analyzed) into one of the following categories:

1. *Beall's publication*: papers (co)authored by Jeffrey Beall;
2. *Empirical publication*: papers that present the results of any, even a small, original empirical study;
3. *Theoretical publication*: papers that suggest some new theoretical approach to the topic of predatory publishing or present a developed critique of existing approaches. These papers are not necessarily theoretical in a strict sense: they often do not construct or analyze advanced theories to explain the phenomenon of predatory publishing. What distinguishes them from other publications is a lack of an original empirical study and the addition of new insights to the ongoing discussion; and
4. *Informational publication*: papers that are purely informational and whose aim is to increase awareness of the phenomenon but not add anything to existing knowledge on predatory publishing,

Fig. 2 shows the annual distribution of analyzed papers according to the four categories. The first three categories form the final set of the 280 analyzed publications. Three hundred and thirteen publications were classified as “informational publications” and excluded from the final set. These publications were mostly unsystematic literature reviews or short warnings about publishing in predatory journals.

We also excluded 55 non-English publications, 309 publications because their content was not related to predatory publishing, and 399 publications because they were not scholarly publications but errata, letters to editors, or blog posts. There were also 21 publications of which full texts could not be found, and seven publications that had been published before 2010 (when the term “predatory publishing” was coined) (Beall, 2013b). Some of these publications from before 2010 were discussed in Review of literature prior to 2010 section, but in our systematic review we have aimed to focus on the significance of the idea of predatory publishing for the discussion on academic publishing.

We created the final list, consisting of 280 publications, for in-depth qualitative analysis. The final list of publications is included in the Appendix.

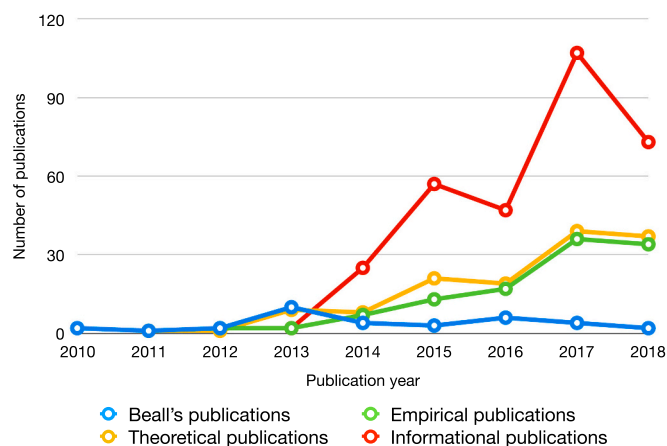


Fig. 2. Publications on predatory publishing (n = 593) classified into categories.

Qualitative analysis

Before coding the final set of publications, we read and analyzed key papers about predatory publishing in order to create an appropriate coding scheme. Next, for testing purposes, we coded a few papers. Both authors examined the coding and discussed its pros and cons. Then, we adjusted the codes whose operationalization was too difficult. When the final coding scheme was ready, we imported the final set of the 280 papers in the MaxQDA 12 software.

Each of the 280 papers was coded by the first author of this paper using the final coding scheme. Although the initial coding scheme contained 22 codes, we used nine codes for the analyses presented in this paper. The codes are presented in Table 1.

The main coded theme was the characteristic of predatory journals, which is divided into seven codes. We also coded two auxiliary themes: (1) mentions of the publish-or-perish research culture (i.e., a pressure to publish many publications in order to succeed in academia) and (2) authors' attitudes toward Jeffrey Beall's work.

Although this study is focused on qualitative analysis, we used a frequency analysis of the coded papers to support the qualitative results (Sandelowski, 2001). While a close reading of the analyzed papers allowed us to identify and characterize the most important themes, a frequency analysis of the coded papers helped show the scale of the appearance of these themes.

Results

Table 2 shows the frequency of the codes in each of the three categories of the analyzed papers. In Jeffrey Beall on predatory open access publishing section, we describe the main themes based on the most frequent codes by which Jeffrey Beall characterized predatory publishing. We also present five different strategies used by Beall to frame predatory publishing as a disadvantage of the OA model. Further, in Strategies of combining predatory journals and open access publishing in non-Beall publications section, we compare the approaches of Beall and other authors. In “No better list is available so far”: Scholars' attitudes toward Beall's work and approach section, with a detailed analysis of the code “authors' attitudes toward Beall”, we indicate the mostly

Table 1
Coding scheme

Theme	Code	Description
Characteristics of predatory publishing	New phenomenon	Predatory publishing is presented as a new or rapidly growing phenomenon.
	Not a new phenomenon	Predatory publishing is presented as a phenomenon with a long history.
	Intent to deceive	Predatory publishing is characterized by dishonesty or the malevolent intent of publishers.
	Poor peer review	Predatory publishing is characterized by a lack of a valid peer review.
	Author charges	Predatory publishing is characterized by journals charging fees to authors.
Combining predatory publishing with OA	Critique of combining predatory publishing with OA	Authors link predatory publishing and OA. Authors criticize combining predatory publishing with OA.
	Mentions of publish-or-perish	Publish-or-perish culture (i.e., heavy pressure on scholars to publish) is mentioned in the context of predatory publishing.
Authors' attitude toward Beall	Authors' attitude toward Beall	Jeffrey Beall or his works are mentioned.

Table 2
The frequency of codes in Beall's ($n = 34$) empirical ($n = 111$) and theoretical ($n = 135$) publications

Characteristics of predatory journals	Type of study		
	Beall's publications	Empirical publications	Theoretical publications
New phenomenon	41%	50%	37%
Not a new phenomenon	0%	4%	10%
Intent to deceive	68%	51%	36%
Poor peer review	71%	77%	60%
Author charges	79%	68%	64%
Combining predatory publishing with OA	100%	64%	50%
Critique of combining predatory publishing with OA	15%	36%	36%
Mentions of Publish or Perish	41%	54%	53%
Authors' attitudes toward Beall	-	87%	78%

positive attitudes toward Beall and his work expressed by the majority of authors. These attitudes demonstrate the effectiveness of some of Beall's strategies and his major influence on the discussion at large.

Jeffrey Beall on predatory open access publishing

Jeffrey Beall coined the term "predatory publishing," and, undoubtedly, he is the central figure in the discussion.

Since 2010 until the date of the data collection, Beall wrote 34 journal articles on predatory publishing. Moreover, on his blog (scholarlyoa.com), he also lists "potential, possible, or probable predatory scholarly open-access" publishers and standalone journals. Although writing about predatory publishing may suggest writing about all kinds of publishing, Beall was solely focused on journal publishing. His lists of journals and publishers were updated up until January 2017, the point at which Beall closed his blog (a copy of the last version of the lists is currently preserved by an anonymous individual at <https://beallist.net/>). After closing his blog, Beall argued that the decision was enforced by the University of Colorado Denver where he worked (Beall, 2017). University authorities, however, have denied this claim (Swauger, 2017).

Based on codes presented in Table 1, the analysis revealed five major themes with which Beall characterizes predatory publishing. They are presented in Table 3.

We argue that, in using these themes, Beall combined two topics: a discussion of the OA publishing model and a discussion of knowledge validation. There should be no doubt that the OA model is somewhat new, and there are many new recently established OA journals. Moreover, greed and dysfunctional peer review allow pseudoscience to leak into the mainstream academic literature. Nonetheless, the concept of predatory publishing helps merge these two topics.

Beall argued that predatory publishers make the demarcation of science from non-science much more difficult (Beall, 2013c). He pointed out that they do this by, for instance, publishing articles promoting untested drugs (Beall, 2016d) or misleading articles produced by anti-nuclear activists (Beall, 2018). Beall also points out that predatory journals publishing several low-quality articles is not pseudoscience per se, but it leads to the weakening of legitimate science as well as its ability to oppose pseudoscientific views.

At the same time, we found that, in all 34 papers, Beall linked OA

Table 3
Major themes that characterize predatory publishing in Beall's writings according to the codes used in quantitative publication analysis of this study

Code	Example of theme in Beall's writings
New phenomenon	Beall perceives predatory journals as something new that emerged from the OA movement and have since then proliferated very quickly (Beall, 2018, p. 285).
Intent to deceive	In Beall's writings, it is not a lack of skill in proper publishing that characterizes predatory publishers but the fact that those publishers are "established and designed to deceive" (Beall, 2012b) as well as that they act only "for their own profit" (Beall, 2016b, p. 1511).
Poor peer review	Beall argues that, even when predatory publishers conduct peer reviews, they are poor quality, and, in the end, they are "accepting any and all submissions just for the money" (Beall, 2013a, p. 591)
Author charges	For Beall, charging authors is a distinctive feature of predatory publishing that "abuse[s] the author pays model" (Beall, 2013d, p. 11)
Combining predatory publishing with OA	Beall defines predatory journals as OA and writes: "By definition, all predatory journals follow the gold open-access model" (Beall, 2013c, p. 10)

with predatory publishing. For comparison, we found that Beall refers to the publish-or-perish research culture, that is, high publishing pressure put on the researcher by universities and policy makers, in only 14 papers. Such pressure to publish might be an important explanatory factor for the predatory publishing phenomenon; thus, this shows to what extent Beall focused on OA in his approach.

How did Beall create such a close link between the predatory publishing and OA? We identified five strategies he used for combining those two topics in his writings: (1) OA in a definition of predatory publishing, (2) praising traditional publishers, (3) blaming OA advocates/the movement, (4) tensions between the pros and cons of OA, and (5) the overgeneralization of the features of some OA journals.

Strategy 1: OA in a definition of predatory publishing

The first most basic and common strategy was using the concept of open access within the definition of "predatory publishing." In several articles, Beall clearly stated that predatory journals are OA "by

definition" (Beall, 2013c, p. 10), and, to highlight this link, he used the phrase "predatory Open Access publishing." Beall argues that many OA publishers charge article processing charges (APCs), and, for Beall, predatory publishing is defined by an intent to deceive and take money from authors. He perceived APCs as a model with a "fatal flaw" (Beall, 2013b, p. 80; 2013e, p. 47; 2016a, p. 78). Therefore, he argued that, in this model, authors—and not readers—become customers, which creates incentives for publishers to publish as many articles as possible.

Strategy 2: Praising traditional publishers

Using his second strategy, Beall praises publishers that use the subscription model because, in his opinion, they focus on publishing high-quality research. He also argues that they sometimes sustain a "gentleman's agreement", which has been a foundation of mutual trust in the legitimacy of the peer review system (Beall, 2017, p. 278). At the same time, he acknowledged that, for example, Elsevier (the major publisher of subscription model journals) published a journal on homeopathy. However, he considered this an exception and not a "fatal flaw" of the publishing model (Beall, 2018).

Strategy 3: Blaming OA advocates and the movement

His third strategy relates to blaming OA advocates for supporting predatory journals by criticizing traditional publishers while providing no criticism of OA journals (Beall, 2013a, p. 589). In several papers, Beall even accused OA advocates of having a strong political agenda and being anti-corporatists (Beall, 2013a, p. 589), collectivists (Beall, 2013b, p. 84), and Eurocentrists sponsored by George Soros (Beall, 2013a, p. 592). However, such a direct critique does not always characterize Beall's writing. He also praises *PLoS One* as an example of a successful implementation of the gold OA model, i.e., based on journals collecting article processing charges (Beall, 2013f). Moreover, Beall states that motives for promoting OA were noble (Beall, 2016e), and free access to scientific articles is especially helpful for students and researchers from developing countries (Gutierrez, Beall, & Forero, 2015).

Strategy 4: Tensions between pros and cons of OA

We decided to classify internal tensions in Beall's statements about OA as his fourth strategy. When using this strategy, Beall points out some advantages of OA to balance his criticism. For instance, in one article, he provides a balanced statement: "Although it does have weaknesses, the model itself is not the problem. The problem is the abuse of the author-pays model for profit, leading to the profusion of predatory publishers" (Beall, 2013e, p. 1). Surprisingly, in another article, this abuse becomes such a danger that Beall suggests OA publishing should be actually abandoned, and we should "[e]ncourage the few quality OA journals to reconsider the company they keep, and progressively disengage well established, high-quality publishers from the OA model, rather than sponsor it, as currently do Wiley, Taylor & Francis and Springer Nature" (Beninger, Beall, & Shumway, 2016, p. 5).

Sometimes, Beall also weakens his criticism by presenting himself as someone conscious of the difficulties of the implementation of his definition of "predatory publishers". In one article, he writes: "Unfortunately, there is no objective way to measure or determine whether a publisher is predatory" (Beall, 2013d). Additionally, he points out how difficult it is to determine someone's intent, and that, in the dynamically changing field of scholarly publishing, sometimes it can be difficult to distinguish between misbehavior and a new experimental practice.

Strategy 5: Overgeneralization of features of some OA journals

The fifth strategy was present in the first four strategies. It is based on an overgeneralizing the features of some specific journals to all OA models. In addition to obvious overgeneralizations, such as accusing the whole OA movement of being "anti-corporatism," more elaborate ones can be found. In 2012, Beall described green, gold, and platinum OA models (Beall, 2012b). The green model is based on papers archived by the authors of papers, e.g., in repositories; the gold model is based on

collecting APCs by journals and publishing articles in OA; whereas the platinum model includes journals published in OA without the collection of APCs. Beall uses this understanding of gold OA in all his work. It is controversial, because his definition of gold OA is different in terms of one crucial point from that presented by leading authors writing about OA publishing. Harnad et al. (2004) and Suber (2012) describe the gold OA model as OA journals publishing work regardless of their use of APCs. Beall does not point out this difference, which, in the end, enables him to find a "fatal flaw" in the gold OA model on a whole (Beall, 2013e, p. 47). By erasing free-to-publish journals from the definition, he removes them from the narrative. Although we cannot explicitly determine to what degree this strategy is intentional, we believe it is rhetorically effective.

To summarize, the point of most of Beall's papers is to show the danger of pseudoscience as caused by predatory open access publishing. Sometimes, however, the difference between the danger of predatory publishing and the danger of OA publishing seems to be negligible for Beall. In one article, Beall (2018) writes: "The open-access movement has done more to enable the publishing of pseudoscience than any other social movement in history" (p. 297). Therefore, it is sometimes hard to distinguish when Beall's critique of predatory publishers is a critique of greedy "scammers" (Beall, 2013e) versus when it is a critique of OA publishing.

Strategies of combining predatory journals and open access publishing in non-Beall publications

In this subsection, we show how non-Beall publications—that is, theoretical or empirical publications by authors other than Beall—characterize predatory journals and OA publishing. We specifically focus on similarities we found between the strategies used by Beall and those of other authors.

We defined "empirical publications" according to the degree to which they were based on Beall's lists. We found that 48 of the 111 analyzed studies were based on Beall's lists; in 26 studies, Beall's lists were used as a supplementary source of data (but their main results could be obtained without them); and another 37 studies did not use Beall's lists. Most of the studies that determined characteristics of predatory journals were based on Beall's lists, which highlight the influence of Beall's work on the whole discussion of predatory publishing.

Table 4 presents the share of papers coded by the same codes presented in Table 3, which reflect the key characteristics of predatory publishing emerging from Beall's writing. These results show that Beall's understanding of predatory publishing has strongly influenced other authors' approaches to the problem. As expected, this influence is even greater in research papers based on Beall's lists.

Using the code "not a new phenomenon," we looked for alternative approaches to predatory publishing. However, we found that this code was present only in 17 papers. Several authors wrote that low-quality publishing is nothing new and it was present in every publishing model (Triggle & Triggle, 2017, p. 4). Others mention that charging authors has mainly been used by journals that used the subscription model prior to using OA (Crawford, 2014b, p. 3; Kubiato, 2017, p. 6042) as well as vanity presses in book publishing (Berger, 2017, p. 206).

However, when we analyzed the topic of combining OA with predatory journals, the picture of the discussion was not as clear. Many papers were coded with the code "critique of combining predatory publishing with OA," and some papers were coded with contradictory codes. For these reasons, we reexamined all coded extracts under the topic combining with OA and organized the results in more nuanced categories described in Table 5.

Table 5 shows that more papers combined predatory publishing with OA ($n = 92$), like Beall did, than criticized such a combination ($n = 50$). There was also a substantial group of papers ($n = 30$) that, in addition to criticizing some kinds of such a combination, combined OA and

Table 4

The method of describing predatory journals according to five characteristics of Beall's approach across empirical ($n = 111$) and theoretical ($n = 135$) publications

Characteristics of predatory journals	Type of study			
	Empirical publications			Theoretical publications
	Based on Beall	Beall's lists are a supplementary source	Not based on Beall	
New phenomenon	58%	50%	38%	37%
Intent to deceive	52%	54%	49%	36%
Poor peer review	83%	65%	76%	60%
Author charges	77%	65%	57%	64%
Combining predatory publishing with OA	69%	62%	59%	50%

Table 5

Combining predatory publishing with open access across empirical ($n = 111$) and theoretical ($n = 135$) publications

Combining predatory publishing with OA	Type of study			
	Empirical publications			Theoretical publications
	Based on Beall	Beall's lists are a supplementary source	Not based on Beall	
Combining predatory publishing with OA	43%	42%	51%	30%
Combining predatory publishing with OA with partial critique of such a combination	20%	15%	8%	10%
Critique of combining predatory publishing with OA	23%	15%	8%	24%
Discussion of OA only as literature review	0%	0%	0%	2%

predatory journals in some other way. For example, while describing Beall's list, [Somoza-Fernández et al. \(2016, p. 731\)](#) states, "there is a certain stigma to open access by the way this list was presented and the selection of titles included," but, at the same time, the authors seem to agree with the argument often made by Beall that OA journals collecting APCs makes "the main 'client' become the author" (p. 731) instead of readers or libraries.

There were many similarities between Beall's and the other authors' approaches. Similar to Beall's papers, the most common strategy of combining OA with predatory publishing was acknowledging a definition that conceptualizes predatory journals as using an OA publishing model. Usually, this is connected with assuming that APCs are essential features of predatory journals, for example: "the drive to 'open access' has spawned a new breed of publishers who appear to be exploiting the author pay model" ([Balaram, 2012, p. 1618](#)). Beall is often cited to support such statements, and, sometimes, his original term "predatory open access journals" is used ([Balaram, 2012](#); [Erfanmanesh & Pourhossein, 2017](#)).

Another strategy of combining predatory publishing with OA is overgeneralization or simply suggesting that the actions of some journals are representative of the whole model or movement. In the analyzed

papers, we found suggestions that all OA publishing is related to charging APCs ([Eriksson & Helgesson, 2017, p. 164](#); [Nair, 2017, p. 107](#)) and sometimes strong statements like "the open-access medical journal business is totally out of control" ([Fava, 2014, p. 3](#)). Moreover, in non-Beall publications, one can also quite often see the same understanding of the term "gold OA" as that featured in Beall's writings, that is, OA journals collecting APCs without mentioning the traditional understanding of gold OA presented by leading authors writing on the subject (i.e., all OA journals regardless of APC status). In the analyzed articles, sometimes the authors clearly defined gold OA by the use of APCs ([Dadkhah, Seno, & Borchardt, 2017, p. 25](#); [Vinnu, Vishnu, & Lal, 2016, p. 119](#)) or defined predatory journals by simply describing them as charging fees and "exploiting the gold OA publishing model" ([Gasparyan et al., 2017, p. 1221](#); [Rostovtsev, 2017, p. 111](#)).

However, most of the authors' critiques were not as radical as Beall's. A critique of OA advocates, widely present in Beall's papers, is almost not present in non-Beall publications. Moreover, none of the analyzed authors accused OA advocates of Eurocentrism, collectivism, or anti-corporatism. The suggestions Beall sometimes made that the whole OA publishing system should be abandoned are also rare. Even when the authors clearly present predatory journals as a problem specific to an OA

model, they seem to treat it as a source of doubt regarding OA and not a “fatal flaw” of the model on a whole.

That is why the strategy of creating tensions between the pros and cons of OA was widely used. Many authors described OA as desirable, but, in the end, they still somehow combined it with predatory journals. For example, [Shuva and Taisir \(2016\)](#) state that “is possible to list hundreds of the potential benefits of open access” (p. 36). However, at the same time, they point out predatory journals as a danger emerging from OA.

However, not all authors appreciated Beall’s conceptual and rhetorical links between OA and predatory journals. We observed three different modes of critique of combining OA publishing with predatory journals. In the first mode, authors criticized a definition of predatory journals and further discussions of them for having too narrow a perspective. They argue that, if the essential features of predatory publishing are unethical behavior and a focus on profit, then many publishers using the subscription model are even bigger predators than some new OA publishers ([Bell, 2017](#), p. 654; [Stöckelová & Vostal, 2017](#), pp. 2–3). [Reynolds \(2016, pp. 233–234\)](#) accused non-OA for-profit publishers of raising subscription fees to too high a price for many libraries to afford, and others pointed out that publishers exploit the unpaid work of peer reviewers ([Teixeira da Silva & Katavić, 2016](#), pp. 204–205) and even sometimes publish pseudoscience ([Berger & Cirasella, 2015](#); [Crawford, 2014a](#), p. 2).

In the second mode, critics pointed out overgeneralizations present in discussions on OA and predatory publishing. They highlight that there is no connection between poor peer review and OA publishing ([Eve, 2014](#), p. 137) and that the misbehavior of some publishers cannot be generalized to the perception of the whole OA or any publishing model ([Crawford, 2014b](#), p. 22). The third mode is based on criticizing Beall’s work and his negative bias against OA publishing. This critique is described in the following section.

“No better list is available so far”: Scholars’ attitudes toward Beall’s work and approach

In this subsection, we examine scholars’ attitudes toward Beall’s work, which is the most likely cause of many similarities between his approach and those of other authors. Although Beall’s publications on predatory publishing are undoubtedly controversial, we found that, in most papers, a positive attitude toward Beall’s work prevails over

criticism. The results of the present paper show the effectiveness of at least some of Beall’s strategies for combining predatory journals and OA publishing presented in the previous parts of this section.

An analysis of non-Beall publications revealed that Beall was mentioned in 205 (83%) of 246 analyzed papers. We coded excerpts that expressed authors’ attitudes toward Beall’s work and approach. Then, we classified all papers into four categories: (1) *positive*: papers mostly praising Beall’s work and approach; (2) *negative*: papers that mostly criticize Beall’s work and approach; (3) *positive and negative*: papers showing the advantages and disadvantages of Beall’s work and approach; and (4) *neutral*: papers in which Beall’s work was mentioned by authors without a specific attitude to his work or approach.

[Table 6](#) presents the dominant attitude of the authors examined according to the four categories. Despite heavy criticism of Beall’s approach ([Bivens-Tatum, 2014](#); [Crawford, 2014a, 2014b](#); [Nwagwu, 2016](#)), most of the studies we analyzed assessed Beall’s work and approach positively, and criticism was usually mixed with highlighting some advantages of Beall’s work (a somewhat positive attitude was found in 127 of 246 papers). Beall is sometimes described as “an authority” ([Hassmén, Keegan, & Piggott, 2016](#)) and “famous” ([Silva Aycaguer, 2018](#), p. 5) and his work as “much appreciated” ([Bolshe, 2018](#), p. 161). Often, most of the authors’ attention was focused not on Beall but on his lists. They are praised as a “good resource” ([Kurt, 2018](#), p. 142), “comprehensive and updated” ([Cariappa, Dalal, & Chatterjee, 2016](#), p. 169), and sometimes less enthusiastically as “limited” but still “the primary source of information” ([Memon, 2018](#), p. 1618).

Beall’s work is the most positively valorized by authors discussing predatory journals when his influence on the discussion is not fully visible in the text. An article by [Clements, Daigle, and Froehlich \(2018\)](#) provides a good example of this phenomenon. The authors state: “Although there are many benefits of OA publishing, the approach has been linked to the emergence of so-called ‘predatory OA journals’ (Beall, 2012, 2013), which have rapidly increased in recent years (Shen and Björk, 2015)” ([Clements et al., 2018](#), p. 2). However, [Clements et al.](#) do not mention that the study by Shen and Björk is fully based on Beall’s lists. In this way, Beall’s role in establishing that the way in which predatory publishing is understood becomes fundamental but somehow invisible as well. In short, Beall’s lists are Beall’s no more. They are lists of predatory journals in general, and those journals are just objects existing in the external world that can be studied by others.

The relationship between strategies of combining predatory journals

Table 6
Attitudes toward Beall’s work and approach across empirical ($n = 111$) and theoretical ($n = 135$) publications

Attitudes toward Beall’s work and approach	Type of study			
	Empirical publications			Theoretical publications
	Based on Beall	Beall’s lists are a supplementary source	Not based on Beall	
Positive	35%	53%	35%	24%
Negative	8%	0%	5%	18%
Positive and negative	39%	26%	8%	16%
Neutral	16%	19%	21%	20%
Beall not mentioned	0%	0%	29%	22%
Total share of publications	100%	100%	100%	100%

with OA publishing, and this widely present positive attitude among the academic community toward Beall should be understood as a positive feedback loop. On the one hand, a positive attitude is proof that the strategies used by Beall have been convincing for readers or at least are not seen as very serious disadvantages. On the other hand, describing Beall's work with such a positive attitude becomes a strategy in itself. It is certainly easier to combine OA with predatory publishing while having someone described as an "authority" on your side.

Moreover, the mostly positive attitude in the academic community toward Beall sometimes helps to counter critiques of his work. In a paper by [Ibba et al. \(2017\)](#), one can observe that Beall's strategy, which we described as an internal tension between the pros and cons of OA and his own method (see [Jeffrey Beall on predatory open access publishing](#) section), helped increase his overall influence on the discussion. Despite many previously major critiques of Beall, [Ibba et al.](#) state: "in this paper, we have taken as a starting point Beall's list. We are aware of its limits, which have been reported by the American academic librarian himself" (2017, p. 517). In another article, the authors state, "Beall's list is not perfect", but "no better list is available so far" ([Grančay, Vveinhardt, & Šumilo, 2017](#), p. 1832). However, it is John Bohannon who found the most creative way to reject charges against Beall: "Like Batman, Beall is mistrusted by many of those he aims to protect" ([Bohannon, 2013](#), p. 62).

One of the most common lines of critique of Beall highlight his prejudices against OA publishing ([Bell, 2017](#); [Bivens-Tatum, 2014](#); [Somoza-Fernández et al., 2016](#)). Among papers criticizing Beall, there are also an empirical study aimed at showing shortcomings of Beall's lists ([Crawford, 2014b](#)) and a study that presents the subjectivity of Beall's criteria for determining predatory journals ([Olivarez et al., 2018](#)). Moreover, his lists have been presented as created in a non-transparent manner ([Teixeira da Silva, 2017](#)) and biased due to their focus almost entirely on journals published in English ([Nwagwu, 2016](#)). From a conceptual perspective, [Stöckelová and Vostal \(2017\)](#) pointed out a shortcoming of Beall's approach: blaming publishers when we should instead focus on the whole dysfunctional system of modern science.

A tension between the advantages and disadvantages of Beall's work is most apparent in some research based on his lists. What is interesting, as one can find in [Table 6](#), is that the more frequently authors use Beall's lists, the more they seem to be conscious of their shortcomings. The analyzed authors mentioned Beall's biases and his unclear criteria for determining predatory journals but used his lists "despite such limitations" ([Demir, 2018](#)).

Discussion and conclusion

This study shows that the major themes by which Beall has characterized predatory journals are widely present in non-Beall publications. In analyzed papers, Beall's lists of predatory journals are also frequently used and comprise the basis for 48 empirical papers. Moreover, despite criticism of Beall's work, most studies express a positive attitude toward it. One hundred and twenty-two analyzed papers combined OA with predatory publishers, and only 30 combined it with criticism of a too strong connection between OA and predatory publishing. The strategies Beall used to combine these topics (except the most radical accusation regarding OA advocates) are widely used by other authors.

Some of the presented strategies in this paper are harmful to the academic discussion regarding OA. Overgeneralizations of the flaws of some OA journals to the whole OA model or praising subscription model journals without mentioning their flaws leads to unjustified prejudices toward OA. A positive attitude toward Beall, describing him as an authority or superhero ([Bohannon's \[2013, p. 62\]](#) comparison to Batman), suggests a lack of critical reflexivity toward assumptions shared by previous papers about predatory publishers. Probably, Beall's characteristic of predatory publishers became obvious for many other authors and they do not need to critically assess it.

Because of the overuse of these strategies, the term "predatory journal" became a junction in which care about the quality of academic publishing and a discussion of OA merge in an unclear way. This junction is also unfortunate for the discussion on knowledge validation and pseudoscience. If predatory publishers are defined as using the APC model and being OA, they should be presented as only a small piece of the big picture of how pseudoscience circulates in modern society. In wide literature about pseudoscience, one can find, for example, the case of tobacco companies being able to buy the support of a famous physicist to deny the harmful effects of smoking ([Oreskes & Conway, 2010](#)). In this context, shady journals ready to publish anything for \$200 do not seem like the most urgent problem to solve and should not be described as such.

Not all the presented strategies in this paper have to be harmful to a balanced academic discussion. For instance, the strategy of creating tensions between the pros and cons of OA is generally valid. In addition, the discussion on the APC model of OA journals is still open, and this model has its adversaries even among strong advocates of OA ([Aguzzi, 2019](#); [Bivens-Tatum, 2014](#)). A recent study by [Siler and Frenken \(2020\)](#) shows that 57% articles published in fully OA journals indexed in the (Directory of Open Access Journals) DOAJ are published in journals collecting APCs. Moreover, journals with a high impact factor often charge high APCs. This can be a problem for scholars without strong institutional support. A study by [Solomon and Björk \(2012\)](#) revealed that 11% of authors from higher income countries and 39% from lower income countries had to pay APCs from their own personal money. Undoubtedly, it is important to not only provide access to already published articles but also facilitate the possibility of publishing legitimate research regardless of authors' financial resources.

Nonetheless, it should be made clear that there are many legitimate and reputable OA journals ([Björk & Solomon, 2012](#)) and that many OA journals do not collect APCs ([Siler & Frenken, 2020](#)). If someone casts doubt on that assertion, then a balance between the pros and cons of OA can be used as a purely rhetorical strategy to hide the fact that such doubts about OA are nonsense. We also found that gold OA journals not collecting APCs (even when we call them platinum OA, as Beall did) was underrepresented in descriptions of the whole OA model in many of the analyzed papers.

Although many of the papers here criticized Beall's approach ([Bivens-Tatum, 2014](#); [Crawford, 2014a](#)), they did not examine his influence on the discussion on a whole. The present study fills this gap by pointing out that the authors writing on predatory publishing frequently use Beall's lists, his characterization of predatory journals, and strategies of combining OA with predatory journals. We believe that such a deep influence of Beall's lists is unfortunate because this analysis confirmed Beall's bias against the OA movement. The results support [Crawford's \(2014a, p. 10\)](#) claim that Beall's lists were crucial to his popularity. We found that, even when authors are aware of the flaws of Beall's method, they still use it because "no better list is available so far" ([Grančay et al., 2017](#), p. 1832).

In conclusion, we can highlight the importance of creating research tools and databases of a higher scientific rigor than those with which Beall's lists were created. [Neylon \(2017\)](#) argued against such databases by condemning the whole idea of a journal blacklist and proposing instead that academics rely on whitelists, like the DOAJ. However, we agree with [Smith \(2017\)](#) that both blacklists and whitelists share most of their disadvantages (e.g., possible subjectivity and great effort needed to maintain and up-to-date list). The present results show that many researchers feel the need to investigate journals with poor (or no) publishing standards, and we believe that investigating this problem is important if we want to understand academia today. Although initiatives like *Think. Check. Submit Campaign* (<https://thinkchecksubmit.org>) are very useful in increasing awareness, they cannot help in conducting research. We assume that the academic community should put more effort into creating research tools that help study poor-quality (or predatory) journals and not leave it to individual researchers or private

companies. Although private, Cabell's list of predatory journals (established in 2017), for instance, is based on a much more transparent methodology than Beall's lists, with the major disadvantage being that access to it has to be purchased (Anderson, 2017).

We are aware that the present study is not without its limitations. Purely informational academic articles and all articles from popular papers and magazines in addition to blog notes were excluded from the final set of publications. However, we analyzed all English-language scholarly articles that declare to contribute something new to the knowledge about predatory journals. Such articles should have the most criticism for the assumptions of previous works on the topic. For this reason, we can assume that the significant influence of Beall and his approach is also present in texts we did not analyze.

The second limitation is that, because of the time needed to analyze the articles properly, we only analyzed articles published prior to November 2018. Although we appreciate that the recently proposed definition of predatory publishing by Grudniewicz et al. (2019) does not mention OA at all, we believe that, to significantly overcome assumptions that were bases for creating the overall discussion, it is crucial to be conscious of how certain strategies of characterizing predatory publishers became so common. In addition, in a recent paper by Kratochvíl, Plich, Sebera, and Koriřáková (2020) that aimed to evaluate and improve existing criteria for identifying predatory journals, journals are defined as that which "exploit the Gold Open Access (OA) model" (2020, p. 2).

It would be desirable if an academic discussion places more focus on other possible links between the topic of OA and knowledge validation than predatory publishing. Kriegeskorte, Walther, and Deca (2012) point out that many scholars agree that open peer review could greatly aid in evaluating journals' quality. Open access to scientific knowledge can also help laypeople protect themselves from the pseudoscientific agenda.

One of the most commonly proposed ways to counteract predatory publishing in the analyzed articles was a call to increase awareness of the problem among scholars. This is generally good advice; however, it is reasonable to ask: But what exactly are these predatory journals? The results of this study suggest that such a question was asked too rarely in previous articles, and many papers only repeated the controversial approach of previous works. We argue that scholars should not only increase awareness but also their reflexivity about how they depend on the pre-existing discussions. Moreover, awareness should not only include awareness of predatory publishing but also of the strategies that have been used to combine predatory journals with open access.

Author statement

Franciszek Krawczyk: Conceptualization, Coding, Writing - Original Draft.

Emanuel Kulczycki: Conceptualization, Methodology, Writing - Reviewing and Editing, Funding acquisition.

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Declaration of competing interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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