

# Potential predatory journals are colonizing the ICMJE recommendations list of followers

R. Dal-Ré<sup>1\*</sup>, A. Marušić<sup>2</sup>

<sup>1</sup>Health Research Institute-Fundación Jiménez Díaz University Hospital, Universidad Autónoma de Madrid, Avda Reyes Católicos 2, E-28040 Madrid, Spain; <sup>2</sup>University of Split School of Medicine, Šoltanska 2, 21000 Split, Croatia. \*Correspondence: rafael.dalre@quironsalud.es

## ABSTRACT

**Background.** The International Committee of Medical Journal Editors (ICMJE) has expressed its concerns about predatory journals using the list of ICMJE Recommendations (ICMJE-R) followers to “gain the appearance of legitimacy.” We assessed the presence of potential predatory journals on the ICMJE-R list and their adherence to ICMJE recommendations.

**Methods.** A random sample of 350 journals from the estimated 3,100-3,200 biomedical journals listed as ICMJE-R followers was chosen. Data collected from the ICMJE and journal webpages in English were: adherence to six ICMJE-R policies/requirements, year of journal’s listing as ICMJE-R follower, discipline covered, publisher and its country of origin and existence of article processing charge. Potential predatory journal was considered as one open access journal not being a member of a recognized listing in COPE, DOAJ, OASPA, AJOL and/or INASP.

**Results.** Thirty-one percent of journals were considered to be potentially predatory; 94% of them were included in the ICMJE-R list in 2014-2018. Half were published in the United States and 62% were devoted to medicine. Adherence to five of the six policies/requirements was infrequent, ranging from 51% (plagiarism) to 7% (trial registration). Seventy-two percent of journals mentioned a policy on authors’ conflicts of interest. Information on article processing charge was available for 76% journals and could not be found for 22%. Authorship policy/instructions were significantly more present in journals with publishers from India than from the USA (53% vs 30%;  $p = 0.047$ ), with no differences in the other five policies.

**Conclusion.** Predatory journals should be deleted from the ICMJE-R list of followers to prevent misleading authors. ICMJE-R following journals need to be reevaluated with pre-defined published criteria.

## INTRODUCTION

The term ‘predatory journals’ was coined by Jeffrey Beall in 2008, who also created a list of potential predatory journals and publishers.<sup>1</sup> Although there is not an agreed definition of the term ‘predatory journal’,<sup>2</sup> it could be assumed that these are open access journals that publish poor quality articles, with poor or no peer-review process, owned by publishers providing no transparent editorial services. Their main objective is financial gain by article processing charges to authors.

The total number of articles published by some 8,000 predatory journals rose from 53,000 in 2010 to 400,000 in 2014.<sup>3</sup> This was accompanied by an increasing interest on this subject. From 2012 to 2017, the number of articles mentioning predatory journals in five bibliographic databases rose from 5 to 140, respectively, totaling 324.<sup>2</sup> Although most predatory journals are located in developing countries, notably India and Turkey, many are edited in the USA and other western countries.<sup>4</sup> The use of predatory journals has spread all over the world: researchers from 146 countries (out of 193 countries belonging to United Nations) have published in predatory journals.<sup>4</sup> This is particularly important in Europe where the implementation of Plan S in 2020 will increase the percentage of research published to be immediately open access:<sup>5</sup> investigators must know how to distinguish scholarly journals from predatory journals.

Although there are organizations dealing with the ethics and quality of scholarly publishing, such as COPE (Committee of Publication Ethics), ICMJE (International Committee of Medical Journal Editors) or WAME (World Association of Medical Editors), predatory journals pose serious issues to academic journals.<sup>6</sup> In their aim to gain more prestige among researchers, many predatory journals claim to be members (or followers) of respectful organizations such as ICMJE. This is why the ICMJE has

expressed its concerns about predatory journals using the list of ICMJE Recommendations (ICJME-R) followers to “gain the appearance of legitimacy.”<sup>7</sup>

The aim of this study was to assess the current presence of potential predatory journals on the ICJME-R list and their theoretical adherence to ICMJE-R.

**Table 1.** Random sample of 108 potential predatory journals<sup>a</sup> listed as followers of the International Committee of Medical Journal Editors (ICMJE) Recommendations. Presence of 6 specific policies and requirements accessible in journals' websites, disciplines covered, year when the journals were included as followers of the ICMJE Recommendations and country of origin of journals' publishers. All data as of May 5, 2018.

	Yes n (%; 95% CI)	No n (%; 95% CI)
<b>Policies (or statements)<sup>b,c</sup></b>		
Authorship instructions	43 (40; 31-50)	65 (60; 50-69)
Authors' conflicts of interest	78 (72; 63-80)	30 (28; 20-37)
Plagiarism	55 (51; 41-61)	53 (49; 39-59)
<b>Requirements<sup>b,c</sup></b>		
Participant's informed consent	37 (34; 26-44)	71 (66; 56-75)
Research Ethics Committee approval	34 (31; 23-41)	74 (69; 59-77)
Clinical trial registration	8 (7; 3-14)	100 (93; 86-97)
<b>Disciplines covered</b>		
		n (%; 95% CI)
Disciplines	Medicine	67 (62; 52-71)
	Multidisciplinary	24 (22; 15-31)
	Pharmacy	7 (7; 3-13)
	Other <sup>5d</sup>	10 (9; 5-16)
<b>Year of inclusion as followers in the ICMJE recommendations list</b>		
		n (%; 95% CI)
Year of inclusion in ICMJE recommendations list	2014-2018 <sup>e</sup>	102 (94; 88-98)
	2011-2013	5 (5; 2-10)
	Not provided	1 (1; 0-5)
<b>Country of journals' publishers</b>		
		n (%; 95% CI)
Country <sup>f</sup>	USA	54 (50; 40-60)
	India	36 (33; 25-43)
	UK	8 (7; 3-14)
	Other <sup>5g</sup>	10 (9; 5-16)

n = number of journals. 95% CI = 95% confidence interval

(a) These journals are not members of COPE, DOAJ, OASPA, AJOL or INASP's journals online platform for journals of certain Asian and Central America countries.

(b) Provided in the journal's website or through the publisher's website, but excluding their access through professional bodies (e.g., ICMJE, DOAG, OASPA, COPE or WAME) whose websites were provided on some journals' websites.

(c) Mention of these policies and requirements, even if they fall short from what the ICMJE-R mentioned, was considered as compliance.

(d) Other disciplines: Nursing (n = 3), Odontology (n = 2), Alternative medicine (n = 2), Health (n = 2), Biotechnology (n = 1).

(e) 15 journals in 2014; 25 in 2015; 22 in 2016; 33 in 2017; 7 in 2018 (up to February 18, 2018)

(f) 51 different publishers published 99 journals (9 journals were published by themselves)

(g) China (n = 4), Canada (n = 2), Turkey (n = 2), Algeria (n = 1), Lebanon (n = 1)

## MATERIALS AND METHODS

We chose a random sample of 350 journals from the estimated 3,100-3,200 biomedical or health-care journals listed as ICJME-R followers in February 2018 (a journal listed as an ICJME-R follower claims to adhere to the ICJME recommendations).<sup>8</sup> Data collected from the ICMJE and journal websites in English included: adherence to the six main ICJME-R policies/requirements, year of journal's listing as ICJME-R follower, discipline covered, publisher and its country of origin, and existence of article processing charge. The ICJME-R policies (or statements) were those referring to authorship, author's conflict of interest and plagiarism; whereas the ICJME-R requirements were on participant's informed consent, research ethics committee approval and clinical trial registration.

Following the well-respected educational initiative 'ThinkCheckSubmit', potential predatory journals were considered those not being members of a recognized industry initiative, such as COPE, DOAJ (Directory of Open Access Journals), OASPA (Open Access Scholarly Publishers' Association), AJOL (African Journals Online) or INASP (International Network for the Availability of Scientific Publications).<sup>9</sup> As others have done before,<sup>10,11</sup> we checked the inclusion of both the journal and publisher on the updated Beall lists.<sup>12</sup>

## RESULTS

This analysis revealed that 31% (108/350) of journals had characteristics of potential predatory journals. *Table 1* shows that most of them were included in the ICJME-R list of followers in the last four years (94%; 102/108). In four years, the annual number of new followers increased 120% from 15 (2014) to 33 (2017). Half (54/108) were published by publishers in the USA and 62% (67/108) were devoted to medicine. Adherence to five of the main policies and requirements considered was scarce, ranging from 51% (plagiarism) to 7% (trial registration). The policy on authors' conflicts of interest was the only commonly (72%) mentioned policy. Only three journals stated that they followed all six policies and requirements, and 11 (10%) had no public evidence of following these policies. Information on an article processing charge was publicly available for 82 (76%) journals, could not be found for 24 (22%) and two journals specifically stated that there was no article processing charge.

*Table 2* shows the comparison between American and Indian journals. Authorship policies (or instructions) were significantly more present in journals with publishers from India than from USA (53% vs 30%;  $p = 0.047$ ), with no differences in the other five policies and requirements. Eighty percent (86/108) of potential predatory journals were included in the up-dated Beall's lists of potential predatory publishers or journals.<sup>12</sup>

**Table 2.** Random sample of 108 potential predatory journals<sup>a</sup> listed as followers of the ICMJE recommendations. Comparison between American and Indian journals: policies and requirements. All data as of May 5, 2018.

	Present in American journals (n = 54) n (%; 95% CI)	Present in Indian journals (n = 36) n (%; 95% CI)
<b>Policies (or statements)<sup>b,c</sup></b>		
Authorship instructions	16 (30; 18-44)*	19 (53; 35-70)*
Authors' conflicts of interest	38 (70; 56-82)	24 (67; 49-81)
Plagiarism	25 (47; 33-60)	14 (39; 23-57)
<b>Requirements<sup>b,c</sup></b>		
Participant's informed consent	16 (30; 18-44)	14 (39; 23-57)
Research Ethics Committee approval	13 (24; 13-38)	14 (39; 23-57)
Clinical trial registration	2 (4; 0-13)	2 (6; 1-19)

(a) These journals are not members of COPE, DOAJ, OASPA, AJOL or INASP's journals online platform for journals of certain Asian and Central America countries.

(b) Provided in the journal's website or through the publisher's website, but excluding their access through professional bodies (eg, ICMJE, DOAG, OASPA, COPE or WAME) whose websites were provided on some journals' websites.

(c) Mention of these policies and requirements, even if they fall short from what the ICMJE-R mentioned, was considered as compliance.

\* $p = 0.047$  (Chi-square)

## DISCUSSION

Our study provides evidence that many potential predatory journals may indeed be gaining legitimacy by being included as ICMJE-R followers and that this is a recent phenomenon. Although Beall considered 2012 to be the year when predatory publishers exploded,<sup>1</sup> our results show that potential predatory journals needed two more years to start the race to list themselves as followers of the ICMJE-R, reaching a maximum of 31% (33 of 108) of new followers in 2017. Potential predatory journals are also colonizing other databases to gain respectfulness. Hence, PubMed includes articles published by potential predatory journals and the percentage of potential predatory journals increased significantly in only one year. Thus, in 2016, between 11% and 20% of PubMed journals in rehabilitation, neuroscience and neurology were potentially predatory journals, whereas in 2017 these percentages rose to 16%-25%.<sup>13</sup>

There were two limitations to our study. The first is that among the elements that 'ThinkCheckSubmit' advises to check to assess if a journal could be potentially predatory, we checked only the three that were objective and feasible – the article processing charge, easily identifiable publisher and journal being a member of a recognized industry initiative – and we left out those being subjective and non-feasible, such as knowledge of colleagues about the journal, having a recognized editorial board or having articles indexed. For 22 journals, we were not able to identify the article processing charges. However, it is well known that many predatory journals only inform on the fees to be paid once the article has been accepted for publication.<sup>1,2</sup> Finally, two journals explicitly stated that they will not charge any article processing fee; however, both journals and publisher were not included in any of the five recognized industry initiatives<sup>9</sup> and both journals belonged to a publisher (AME Publishing Company, Hong Kong) that was included in the Beall list of potential predatory publishers.<sup>12</sup> The second limitation was that we did not check the accuracy of the six policies and requirements since all, except that referring to authorship policy, can only be checked by submitting a manuscript. This is why we always refer to 'potential' predatory journals.

Publishing in predatory journals is unethical.<sup>11</sup> Potential predatory journals on the list of ICMJE-R followers do not provide public evidence that they actually adhere to ICMJE-R, so it is questionable whether ICMJE should keep this list. They should be deleted from the ICMJE-R list of followers to prevent misleading authors. ICMJE-R followers need to be reevaluated with pre-defined published criteria, similar to the procedure undertaken by DOAJ and OASPA, and these quality checks should be applied to all future applications. A similar approach has been suggested to

ensure that PubMed is free of predatory journal articles: journal candidates should satisfy the three MEDLINE preapplication requirements and should be a member of DOAJ, OASPA, COPE or WAME.<sup>14</sup> Finally, a third way to address this scientific publishing problem – of special relevance to biomedicine, the topic of interest to most predatory journals<sup>10</sup> – is to generate a list of respectful journals. This has been the approach taken by urologists who are creating a 'green list' of reputable journals within their specialty.<sup>15</sup> As of December 2018 there were 57 journals included in the 'Urology green list', all of them complying with several criteria such as, for instance, being a member of a professional organization, having a reputable publisher and editorial board, transparent manuscript submission and peer review process or membership or affiliation with COPE.<sup>16</sup>

## SUPPLEMENTAL FILE

All the data collected for this study are available from the corresponding author, and is available upon request from the corresponding author.

## DISCLOSURES

All authors declare no conflicts of interest. No funding or financial support was received.

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