

# **What do we know about potential predatory journals and the articles they publish?**

David Moher

Ottawa Hospital Research Institute, Canada

World Congress on Research Integrity

Monday 29<sup>th</sup> May 2017

# Disclosures

- No financial disclosures to declare
- No other disclosures to declare
- First observation
  - Almost all published research about predatory journals is unfunded!
  - Given the impact of predatory journals – academic institutions, publishers, journals, funders, and the public – odd that little to none is externally funded.

# Outline

- **Thing 1**
  - Are there differences between open access journals and traditional subscription journals?
- **Thing 2**
  - What are some epidemiological characteristics and reporting quality of articles published in potential predatory journals?

# Take away messages

- There are differences between legitimate open access journals, alternative open access journals, and traditional subscription based ones
- Low income countries have built predatory journals; the global research community populates them
  - Researchers from the US were the second most frequent corresponding authors
- Of those reporting funders, the US National Institutes of Health was the most frequently named
- Likely 50 million humans and whole animals included in predatory publications
- At least 18000 funded studies are possibly 'hidden' in predatory journals
- We need to stop predatory journals

# Starting point

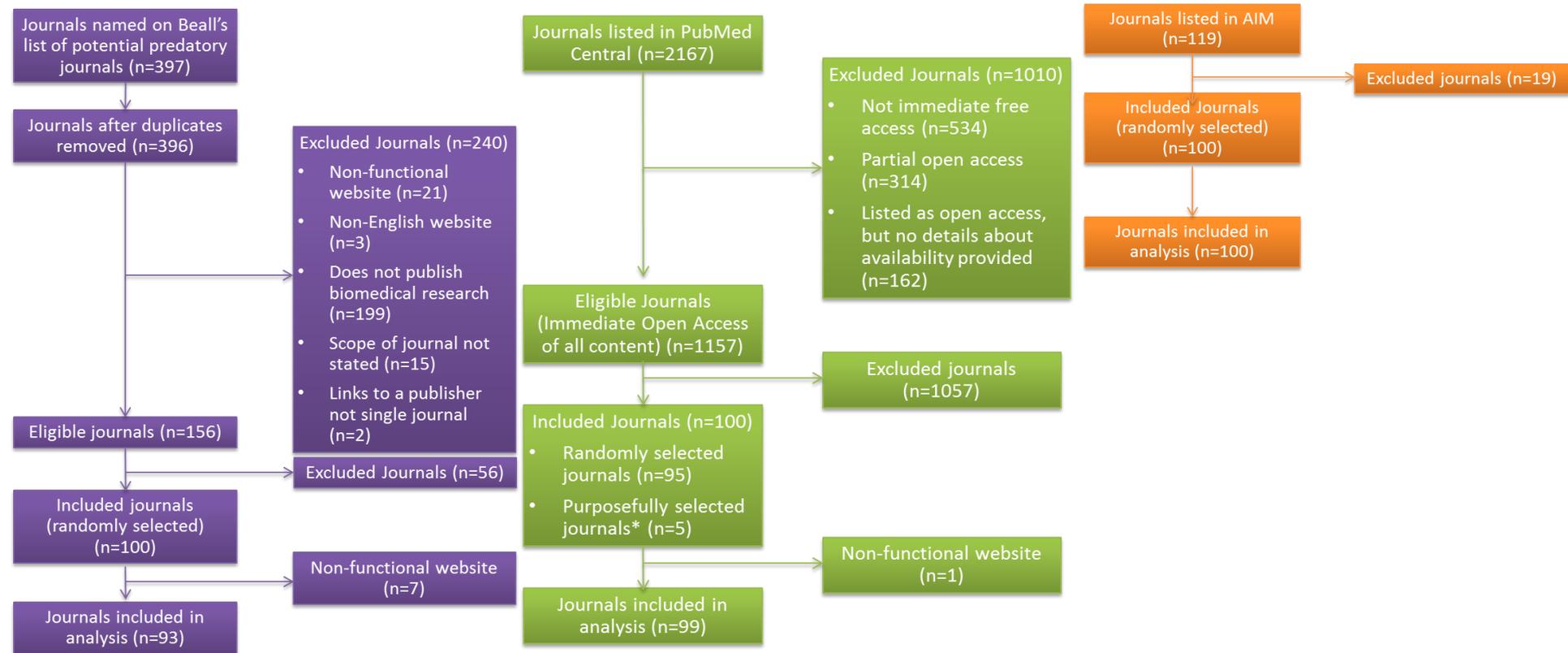
- Open access publishing is under threat
- Alternative journals, possibly fake, offer new publishing possibilities
- They offer the same promises made by legitimate open access journals
  - Thoroughness, peer review and retention of content and copyright
  - Faster decision making and publication at a fraction of the typical open access Author Processing Charges [APC]
  - Biomedicine APC
- Met with a degree of enthusiasm
  - > 10,000 journals
  - 400,000 articles, annually
  - Do they differ from other types of journals?

# Journals and sampling

## PRED

## OA

## TRADITIONAL



# Journal assessment/data extraction:

- 56 Data extraction items:

Website integrity	Peer review process	Copyright
scope & indexing	instructions to authors	geographic location
editors	publication model	contact information

- Derived from Scholarly Open Access criteria, COPE code of conduct for journal publishers, OASPA membership criteria
- Extracted by single assessor & verified by a second assessor

# Results

		Predatory n (%)	Open Access n (%)	Traditional n (%)
Similar journal name	Yes	51 (54.84)	17 (17.17%)	22 (22.00%)
Spelling and grammatical errors	yes	61 (65.59)	6 (6.06%)	3 (3.0%)
Distorted/unauthorized images	yes	59 (63.44%)	5 (5.05%)	1 (1.0%)
Validity check	Legitimate	24/90 (26.67%)	95/98 (96.94%)	97/97 (100%)
Submission system	E-mail to journal	65 (69.89%)	2 (2.02%)	3 (3.0%)
Peer review	Yes			
Claim Thomson Impact Factor	Yes	21 (22.58%)	38 (38.38)	90 (90%)
APC	Median \$USD	100	1865	3000
Copyright retention	Author retains	9 (12%)	64 (68.09%)	32 (36.78%)
Creative commons	Indicating	22 (23.66%)	89 (89.90%)	43 (43%)

# Similar name, different journals

**OAJI** net **Open Academic Journals Index**

Search by Journal Title

European Reviews of Chemical Research

Modeling of Artificial Intelligence

European Journal of ECONOMIC STUDIES

European Journal of Medicine

Open Academic Journals Index

Home

Journals List

Statistics

Our Journals

**TOP 50 Most Downloaded Articles**

For Publishers

Apply for Evaluation / Free Service

Journal Search

OAJI Logo

Advertising options on OAJI

Contact Us

**American Journal of Advanced Drug Delivery**

Published by [Tiba Pharmaceuticals Pvt. Ltd.](#)

Year publication	2013		
Frequency	6		
Article Publishing Frequency	0	Impact Factor OAJI 2012	—
Abbreviation	—	Country	India
ISSN (print)	2321-547X	ISSN (online)	-
Journal Website	<a href="http://ajadd.co.uk/">http://ajadd.co.uk/</a>		
Editor in Chief	Dr. A. Karhu		

**Recently Added Articles**

[International Invention Journal of Medicine and Medical Sciences](#)

[Mediterranean Journal of Modeling](#)

Springer Link

Search

Home • Contact Us

Browse Volumes & Issues

Look Inside

Get Access

**American Journal of Drug Delivery**

ISSN: 1175-9038 (Print)

4 Volumes

16 Issues

100 Articles

2003-2006 Available between

Find your Volume or Issue

Browse all Content

Volume

Issue

Browse Volumes & Issues

**Latest Articles**

Acknowledgments

**Acknowledgment**  
(December 2006)  
» Get Access

Current Opinion

**Extent of supercoiling in plasmid DNA vaccines**  
Dr Manmohan Singh, Mildred Ugozzoli, Elawati Soenawan... (December 2006)  
» Look Inside » Get Access

# Results

		Predatory n (%)	OA	Traditional
Similar journal name	Yes	51 (54.84)	17 (17.17%)	22 (22.00%)
Spelling and grammatical errors	yes	61 (65.59)	6 (6.06%)	3 (3.0%)
Distorted/unauthorized images	yes	59 (63.44%)	5 (5.05%)	1 (1.0%)
Validity check	Legitimate	24/90 (26.67%)	95/98 (96.94%)	97/97 (100%)
Submission system	E-mail to journal	65 (69.89%)	2 (2.02%)	3 (3.0%)
Peer review	Yes			
Claim Thomson Impact Factor	Yes	21 (22.58%)	38 (38.38)	90 (90%)
APC	Median \$USD	100	1865	3000
Copyright retention	Author retains	9 (12%)	64 (68.09%)	32 (36.78%)
Creative commons	Indicating	22 (23.66%)	89 (89.90%)	43 (43%)

# Unauthorized or distorted image



VS

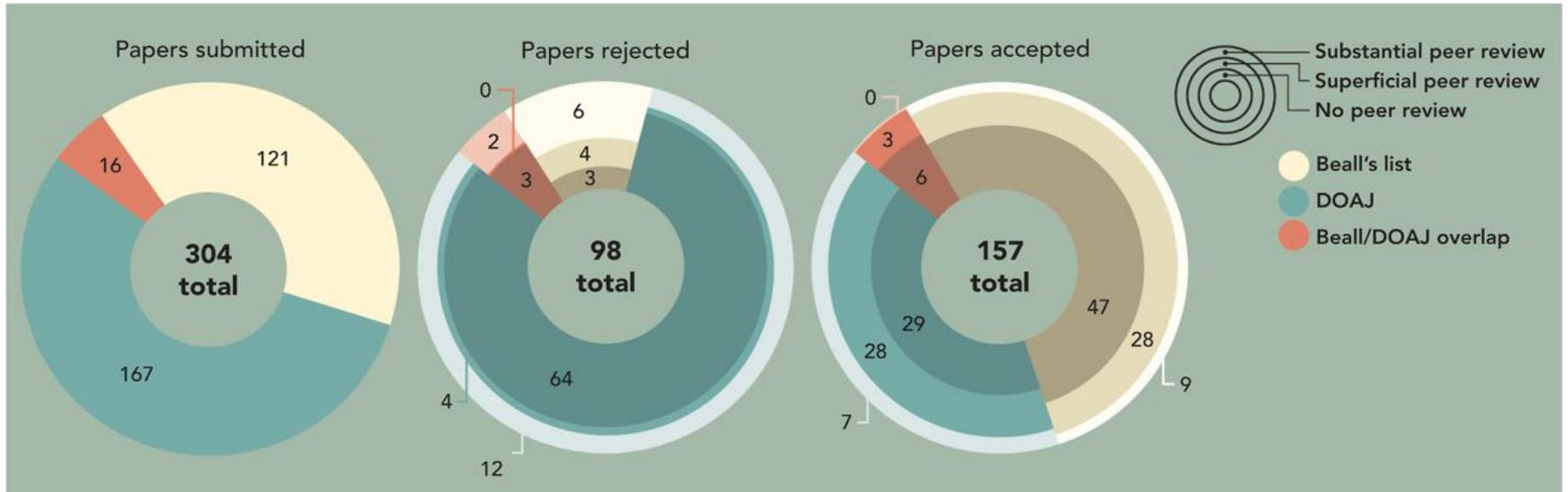


# Results

		Predatory n (%)	OA	Traditional
Similar journal name	Yes	51 (54.84)	17 (17.17%)	22 (22.00%)
Spelling and grammatical errors	yes	61 (65.59)	6 (6.06%)	3 (3.0%)
Distorted/unauthorized images	yes	59 (63.44%)	5 (5.05%)	1 (1.0%)
Validity check	Legitimate	24/90 (26.67%)	95/98 (96.94%)	97/97 (100%)
Submission system	E-mail to journal	65 (69.89%)	2 (2.02%)	3 (3.0%)
Peer review	Yes	89 (95.70%)	99 (100%)	92 (92%)
Claim Thomson Impact Factor	Yes	21 (22.58%)	38 (38.38)	90 (90%)
APC	Median \$USD	100	1865	3000
Copyright retention	Author retains	9 (12%)	64 (68.09%)	32 (36.78%)
Creative commons	Indicating	22 (23.66%)	89 (89.90%)	43 (43%)

# Who's Afraid of Peer Review?

*Bohannon Science, 2013*



- 90% of predatory journals accepted paper without peer review
- 34% of OA journals accepted without peer review

# Journal location

		PRED, n=93 n (%)	OA, n=99 n (%)	Trad, n=100 n (%)
Country name in journal title differs from country listed in “contact us” <sup>a</sup>	Yes	11/21 (52.38)	4/13 (30.77)	1/31 (3.23)
	Country named in contact address <sup>b</sup>	Top 5 listed (n) <sup>*</sup>	India (40) UK (5) USA (4) Romania (3) Bulgaria (2)	UK (34) South Korea (9) Iran (5) New Zealand (4) Germany (3)
Low/low-middle income countries (LMIC) <sup>†</sup>		48/64 (75.00%)	18/92 (19.56%)	0/83 (0.00%)

<sup>a</sup> Denominator of fraction represents number of journals naming a country in the title

<sup>b</sup> More than one country named by some journals;

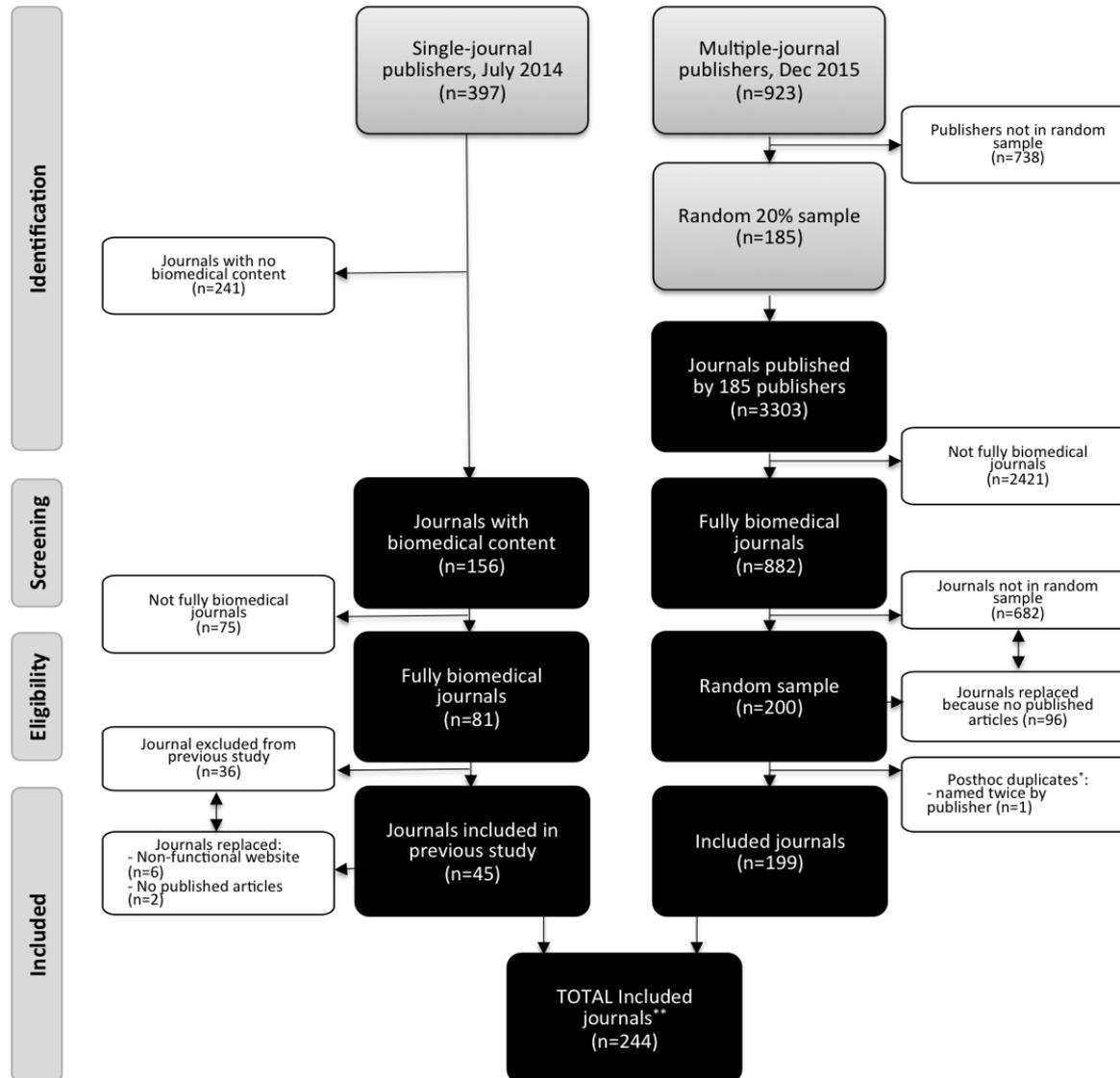
<sup>c</sup> Denominator of fractions indicates the number of journals where the variable concerned was relevant

<sup>\*</sup> Number of journals providing this information: Predatory, n=64; Open access n=92; Subscription, n=83

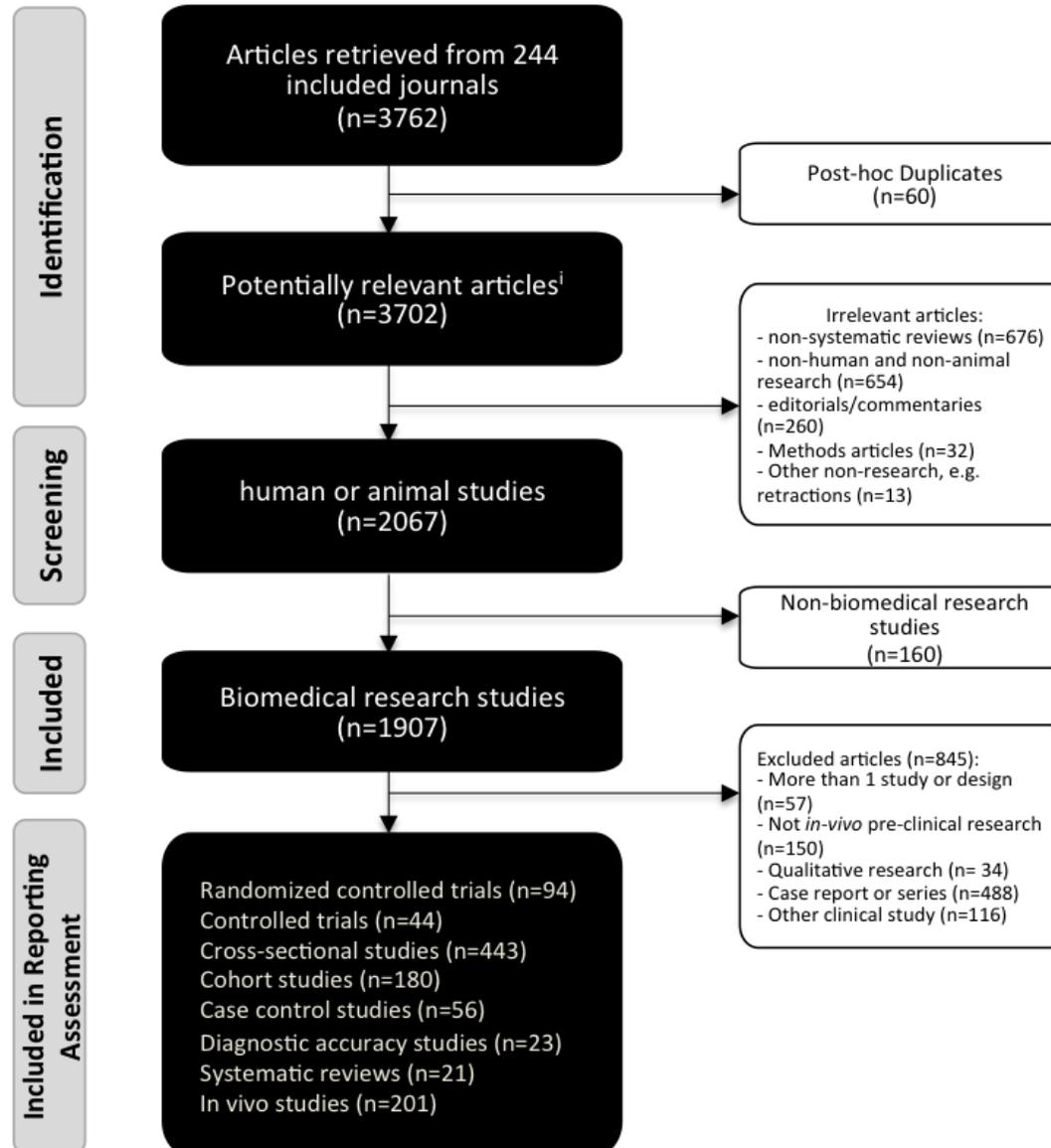
<sup>†</sup> Categorized using 2014 World Bank Data: <http://data.worldbank.org/about/country-and-lending-groups>

**These results indicate there are differences between journals but what about the articles predatory journals publish?**

# Flow of the publisher (grey) and journal (black) identification and selection process



# Flow of article identification and selection and inclusion in reporting assessment



# Journal assessment/data extraction:

- Epidemiological characteristics
- Publishing characteristics
- Location
- Quality of reporting

OASPA: Open Access Scholarly Publisher's Association (<http://oaspa.org/>);  
COPE: Committee on Publication Ethics (<http://publicationethics.org/>)

# Results

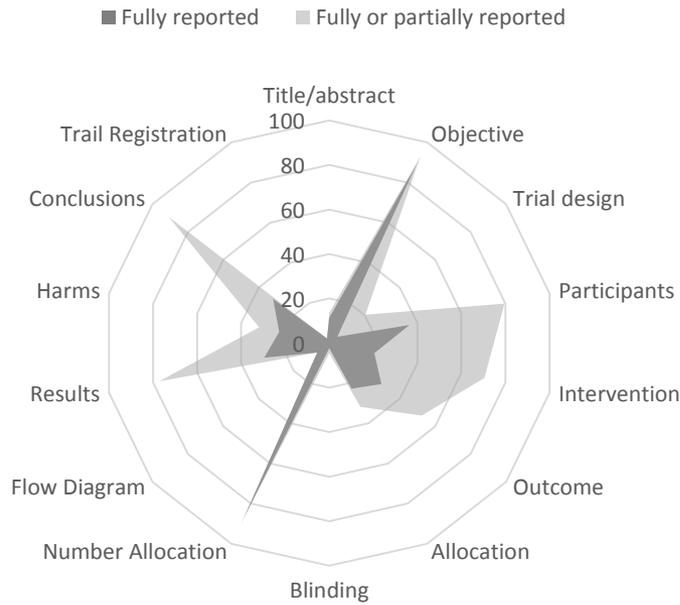
- > 2 million participants
- > 8000 animals

Characteristic		n (%)
Study architecture	Clinical Whole animal	1556 (81.61%) 201 (10.56%)
Location of journal	Top 5 countries	India (n = 22, 9.06%) USA (n = 15, 6.97%) Canada (n = 4, 1.64%) Iran (n = 3, 1.23%) UK, Pakistan, Nigeria, Bulgaria (each n = 2, 0.82%) Not reported (n = 181, 74.18%)
Country of corresponding author	Top 5	India (n = 511, 26.80%) USA (n = 288, 15.10%) Nigeria (n = 99, 5.19%) Iran (n = 82, 4.30%) Japan (n = 75, 3.93%)
Ethics approval	Yes Not reported	724 (39.85%) 1076 (59.22%)

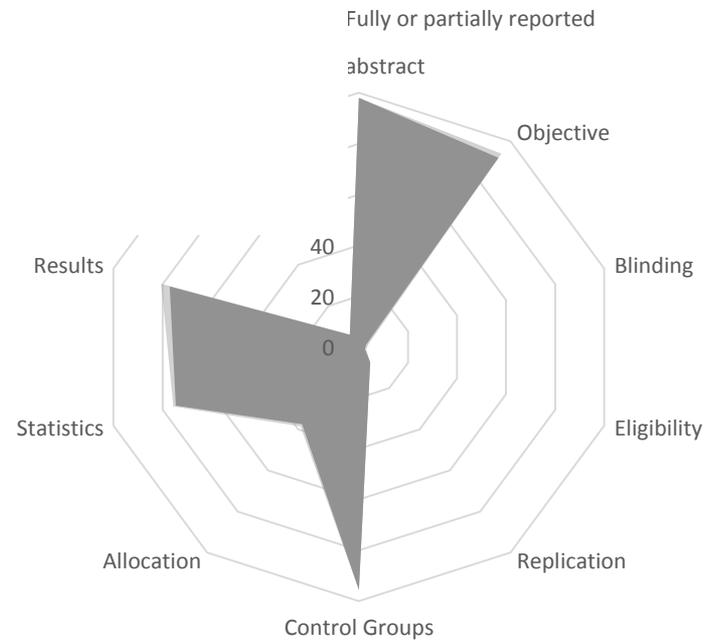
characteristic		n (%)
Research designs		RCT 94 (6.04%) CCT 44 (2.83) Cohort 180 (11.57%) Case control 56 (3.6%) Cross section 443 (28.47%) DTA 23 (1.48%) Systematic review 21 (1.35%) Case report/series 448 (31.17%) Qualitative 34 (2.19%)
Number of funders	443	
Type of funder	Academic Government Industry Not-for profit Can't tell	124 (35.84%) 122 (35.26%) 29 (8.38%) 52 (15.03%) 19 (5.49%)

# Quality of reporting

Non-randomized Controlled Trials (N=44)



Whole animal (N=201)



# What do these results mean?

- Extrapolate across all biomedical predatory journals
  - > 50 millions participants and animals
  - At least 18,000 funded studies are possibly 'hidden' from view
- # of publications represent a small fraction of the total # of publications
- Increasingly difficult to distinguish between research published in predatory journals and legitimate journals
  - Scopus
- Predatory publications being used for promotion and tenure
  - Italian faculty

# What needs to happen?

- Publishers, research institutions, and funders should work together to develop a cohesive set of recommendations on publication integrity to protect the scientific literature against illegitimate journals and publishers

# Stakeholder action

STAKEHOLDER	DIRECT CONSEQUENCES OF PREDATORY PUBLISHING	ACTIONS TO PREVENT PREDATORY PUBLISHING	BENEFITS OF PUBLISHING IN LEGITIMATE JOURNALS
RESEARCHERS/ AUTHORS	<ul style="list-style-type: none"> <li>Deceived into unscientific publishing behavior</li> <li>Integrity/credibility of research may be questioned</li> <li>Potentially harmful to reputation and career if detected</li> <li>Little or no dissemination or uptake</li> </ul>	<ul style="list-style-type: none"> <li>Learn <a href="#">markers</a> of predatory journals/publishers</li> <li>Increase knowledge/awareness <a href="#">best practice journal standards</a></li> <li>Ensure that journals you submit to have transparent operations</li> <li>Ensure research is published with perpetual access</li> </ul>	<ul style="list-style-type: none"> <li>Research can be found and disseminated to target readers/audiences</li> <li>Research can be built upon in future research</li> <li>Builds/maintains credibility</li> <li>Research is peer reviewed</li> <li>Improves impact and metrics</li> </ul>
ACADEMIC INSTITUTIONS	<ul style="list-style-type: none"> <li>Harmful to institutional reputation/credibility, if detected</li> <li>May unknowingly count predatory publications towards promotion/ tenure</li> </ul>	<ul style="list-style-type: none"> <li>Provide mandatory training to graduate students, researchers and information specialists/librarians on best publishing practices, including how to select a journal</li> <li>Develop and enforce policies on expected standards of publishing</li> <li>Provide support for open access publishing</li> <li>Value and reward good publishing practice</li> </ul>	<ul style="list-style-type: none"> <li>Ensures that distribution of rewards (e.g., promotion/tenure) based on ethical/transparent publishing practices</li> <li>Facilitate/promote researcher responsibility for publishing decisions</li> <li>Builds/maintains institutional credibility</li> </ul>
FUNDERS	<ul style="list-style-type: none"> <li>Poor use of scarce resources</li> <li>Harmful to reputation/credibility, if detected</li> <li>May unknowingly count predatory publications towards funding</li> <li>Little or no dissemination/uptake of funded research</li> </ul>	<ul style="list-style-type: none"> <li>Develop and implement policies on expected standards of publishing for funded research</li> <li>Monitor and enforce policies on journal publication standards</li> <li>Check applicant CVs for legitimacy of journals</li> </ul>	<ul style="list-style-type: none"> <li>Ensures funding is invested wisely</li> <li>Ensures dissemination of research through publication</li> </ul>
JOURNALS/ PUBLISHERS	<ul style="list-style-type: none"> <li>Journals lose revenues, either through lost author processing charges or access/subscription fees</li> <li>Citations from non-indexed journals will be missed by bibliometric calculators</li> <li>Citations to non-indexed research not vetted by peer review may harm credibility</li> </ul>	<ul style="list-style-type: none"> <li>Ensure ethics information is reported in publications for applicable studies</li> <li>Offer an open access publishing option</li> <li>For open access journals, apply to be indexed in authentic journal databases</li> <li>Follow <a href="#">best practice journal standards</a></li> <li>Provide information about journal operations to readers</li> </ul>	<ul style="list-style-type: none"> <li>Improves publisher &amp; journal credibility</li> <li>Journals are recognized as following best practice standards</li> </ul>
REGULATORS	<ul style="list-style-type: none"> <li>Research published in non-identifiable</li> </ul>	<ul style="list-style-type: none"> <li>Require and review research dissemination and</li> </ul>	<ul style="list-style-type: none"> <li>Obliges researchers to carefully</li> </ul>

STAKEHOLDER	DIRECT CONSEQUENCES OF PREDATORY PUBLISHING	ACTIONS TO PREVENT PREDATORY PUBLISHING	BENEFITS OF PUBLISHING IN LEGITIMATE JOURNALS
<b>ACADEMIC INSTITUTIONS</b>	<ul style="list-style-type: none"> <li>• Harmful to institutional reputation/credibility, if detected</li> <li>• May unknowingly count predatory publications towards promotion/ tenure</li> </ul>	<ul style="list-style-type: none"> <li>• Provide mandatory training to graduate students, researchers and information specialists/librarians on best publishing practices, including how to select a journal</li> <li>• Develop and enforce policies on expected standards of publishing</li> <li>• Provide support for open access publishing</li> <li>• Value and reward good publishing practice</li> </ul>	<ul style="list-style-type: none"> <li>• Ensures that distribution of rewards (e.g., promotion/tenure ) based on ethical/transparen t publishing practices</li> <li>• Facilitate/promote researcher responsibility for publishing decisions</li> <li>• Builds/maintains institutional credibility</li> </ul>

# Evidence informed characteristics of potential predatory journals

1. Scope of interest includes non-biomedical subjects alongside biomedical topics
2. English spelling and grammar errors
3. Distorted/fuzzy images, may resemble or be an unauthorized reproduction of a known image
4. Language targets authors
5. Promotion of the Index Copernicus Value
6. No description of the manuscript handling process
7. Manuscripts are requested to be submitted via email
8. Promises rapid publication
9. Absence of a retractions policy
10. No information on whether and how journal content will be digitally preserved
11. Very low Article Processing/Publication Charge (e.g., <\$150 USD)
12. Those claiming to be open access either retain copyright of published research or fail to mention copyright
13. Non-professional/non-journal email address (such as @gmail.com or @yahoo.com) provided as contact

# Acknowledgements

- Nadera Ahmadzai
- Mostafa Alabousi
- Pauline Barbeau
  - Andrew Beck
- Raymond Daniel
  - Robert Frank
- Mona Ghannad
- Candyce Hamel
  - Mona Hersi
  - Inga Isupov
- Trevor A McGrath
- Matthew DF McInnes
  - Matthew J Page
    - Misty Pratt
- Kusala Pussegoda
  - Beverley Shea
- Anubhav Srivastava
- Adrienne Stevens
- Larissa Shamseer
  - Manoj M. Lalu
  - Kelly D. Cobey
- Kednapa Thavorn
- Sasha van Katwyk
- Roxanne Ward
- Dianna Wolfe
- Fatemeh Yazdi
- Ashley M Yu
- Hedyeh Ziai
- Marc Avey
- James Galipeau
- Lucy Turner
- Virginia Barbour
- Jason Roberts
- Rebecca Burch
- Jocalyn Clark
- Brian Hutton

# References and thanks 😊

- Shamseer L et al. Potential predatory and legitimate biomedical journals: can you tell the difference? A cross-sectional comparison. *BMC Medicine*. 2017 Mar;15(1):28.
- Moher D, et al. Most predatory journals emanate from low-income countries; the global research community populates them. Forthcoming, *Nature*
- Bagues M, Sylos-Labini M, Zinovyeva N. *A Walk on the Wild Side: An Investigation into the Quantity and Quality of 'predatory' Publications in Italian Academia*. Laboratory of Economics and Management (LEM), Sant'Anna School of Advanced Studies, Pisa, Italy; 2016
- Machacek V, Srholec M. Predatory journals in SCOPUS. 2017. [http://idea-en.cergeei.cz/files/IDEA\\_Study\\_2\\_2017\\_Predatory\\_journals\\_in\\_Scopus/mobile/index.html#p=1](http://idea-en.cergeei.cz/files/IDEA_Study_2_2017_Predatory_journals_in_Scopus/mobile/index.html#p=1)