

Research misconduct among health and life sciences publications: a systematic review of retracted articles from emerging institutions



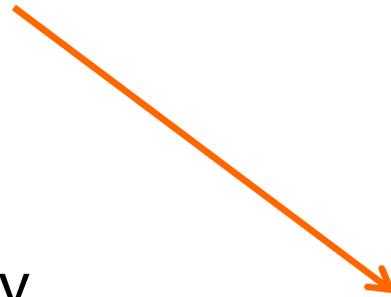
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Research Integrity

- ❖ Relies on rigorous methodological approaches during planning, conduct, documentation and reporting of studies
- ❖ Practices known to harm these steps are classified as **research misconduct**

Research Misconduct

- ❖ Plagiarism
- ❖ Data maipulation
- ❖ Poor study report
- ❖ Lack of transparency



Retraction notice



Retraction notice

- Alert readers to serious errors—unintentional or of misconduct nature;
- Avoid the use of these studies as basis for future investigations;
- Tool to evaluate scientific production.

Brazilian context

- ❖ Member of BRICS (Brazil, Russia, India, China, South Africa). Responsible for some of the 1% most cited publications in the world;
- ❖ The citation impact of the country increased 15% in the past six years.
- ❖ The scientific influence, as well as its participation in collaboration funds and networks for promoting health research, is growing worldwide.

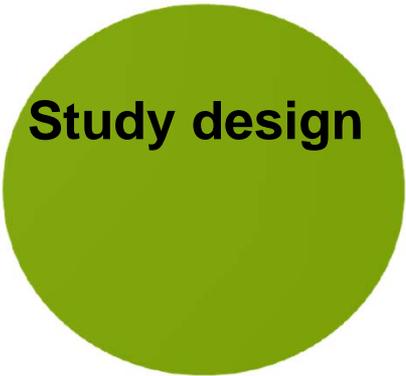
Rationale

- ❖ Increasing number of scientific production and publication from researchers affiliated to Brazilian academic institutions
- ❖ Followed by a rise in **retracted publication**

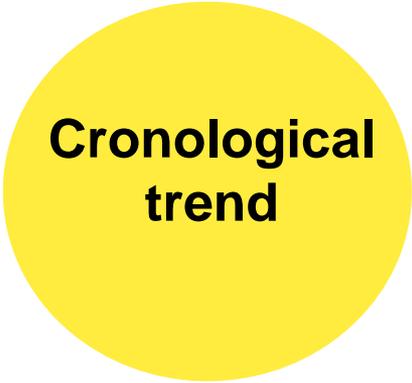


What are the main reasons for retracted publications in the field of health and life sciences that were published by researchers who are affiliated with Brazilian institutions?

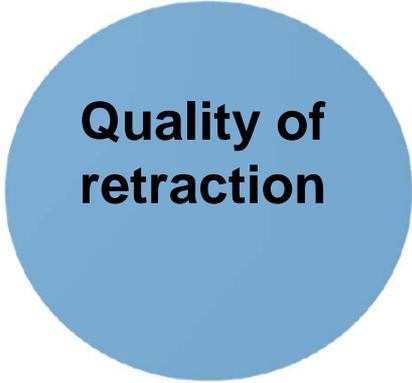
Objectives



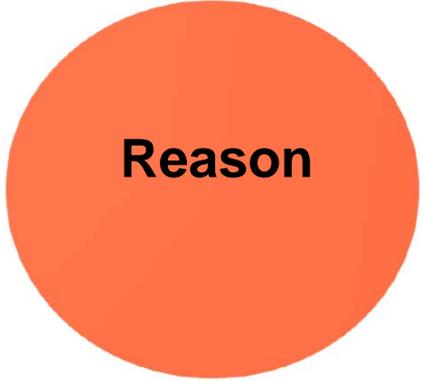
Study design



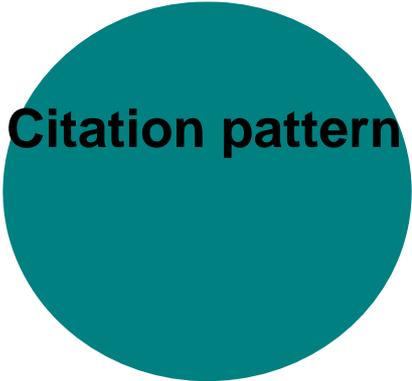
**Cronological
trend**



**Quality of
retraction**



Reason



Citation pattern

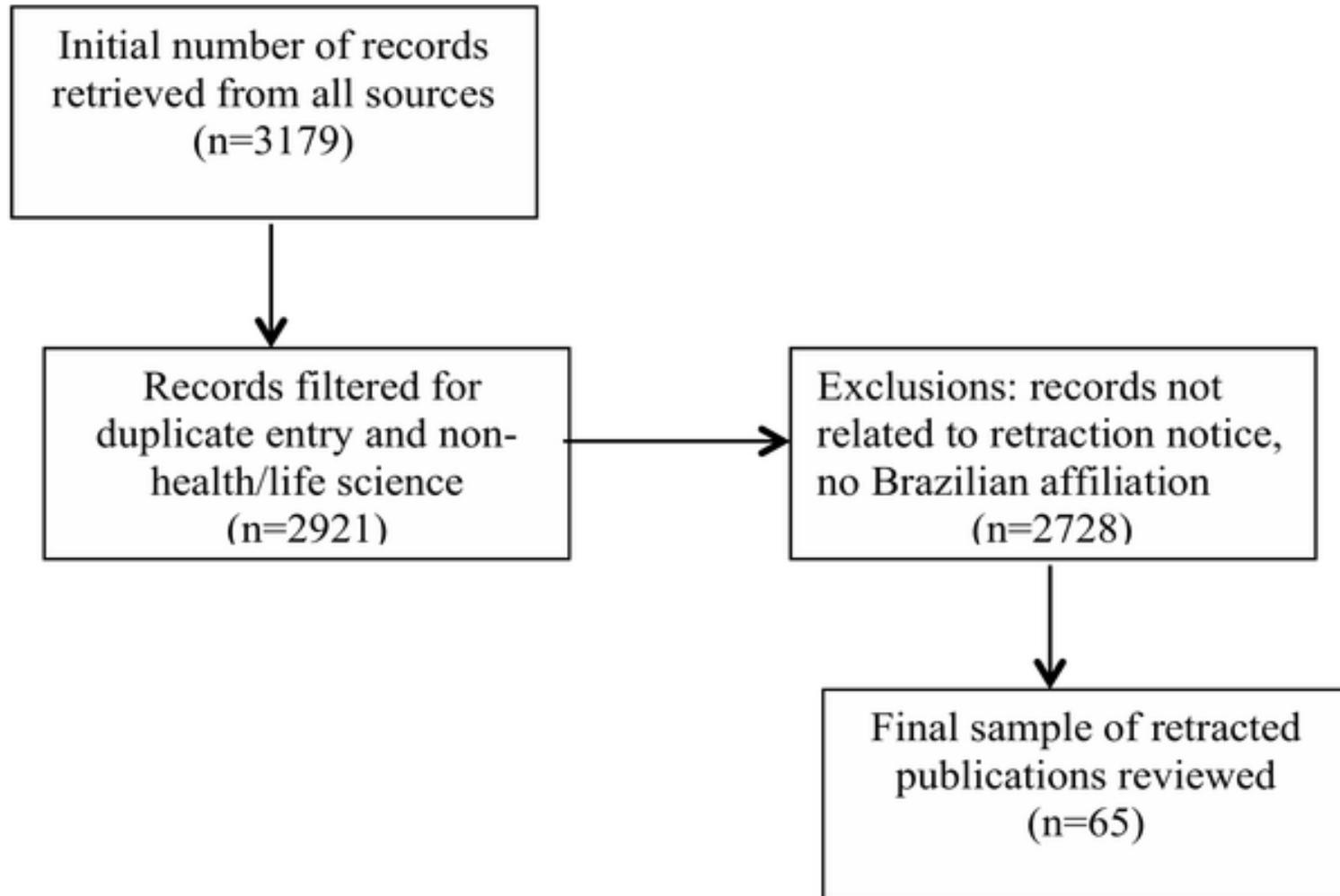


**Total per
author/
institution**

Methods

- ❖ The review protocol is registered with PROSPERO (CRD42017071647).
- ❖ Two independent reviewers searched for retracted articles from 2004 till 2017 at PUBMED, Web of Science, BVS, Google Scholar databases. Data was collected from the Retraction Watch website (www.retractionwatch.com).

Fig 1. Flowchart of study identification and eligibility of retracted articles.



Stavale R, Ferreira GI, Galvão JAM, Zicker F, Novaes MRCG, et al. (2019) Research misconduct in health and life sciences research: A systematic review of retracted literature from Brazilian institutions. PLOS ONE 14(4): e0214272.

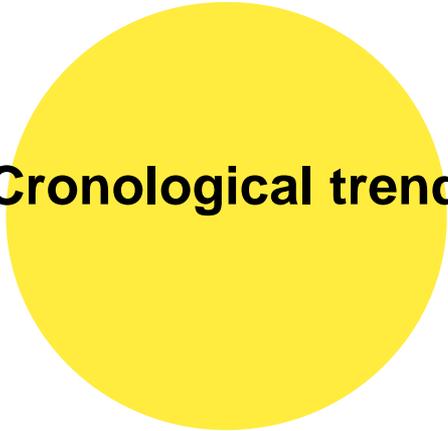
<https://doi.org/10.1371/journal.pone.0214272>

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0214272>

Study design

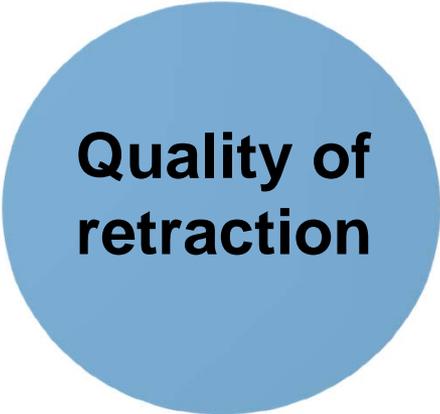
| Study type/area | N (%) |
|--------------------------|------------|
| Experimental | 40 (61.5%) |
| Medical Sciences | 19 |
| Biological Sciences | 14 |
| Dentistry | 3 |
| Sports Sciences | 2 |
| Physiotherapy | 1 |
| Nutrition | 1 |
| Literature review | 15 (23.0%) |
| Medical Sciences | 12 |
| Pharmacology Sciences | 2 |
| Biological Sciences | 1 |
| Observational | 6 (9.2%) |
| Biological Sciences | 2 |
| Medical Sciences | 2 |
| Nursing Sciences | 1 |
| Dentistry | 1 |
| Case study | 2 (3.0%) |
| Nutrition | 1 |
| Dentistry | 1 |
| Meta-analysis | 1 (1.5%) |
| Medical Sciences | 1 |
| Systematic review | 1 (1.5%) |
| Medical Sciences | 1 |
| Total | 65 |

<https://doi.org/10.1371/journal.pone.0214272.t001>



Cronological trend

- ❖ The overall mean time to retraction was 3,36 years;
- ❖ Most articles (55%) took from one to three years from the time of publication to be retracted;
- ❖ Retractions increased from 2012 on.



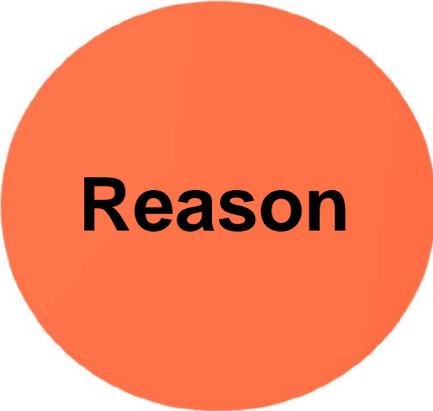
Quality of retraction

- Proper citation of the original article
- Missing data
- Retraction alerts

" Only 43% of the retractions strictly followed COPE guidelines for its publication."

Quality of retraction notices

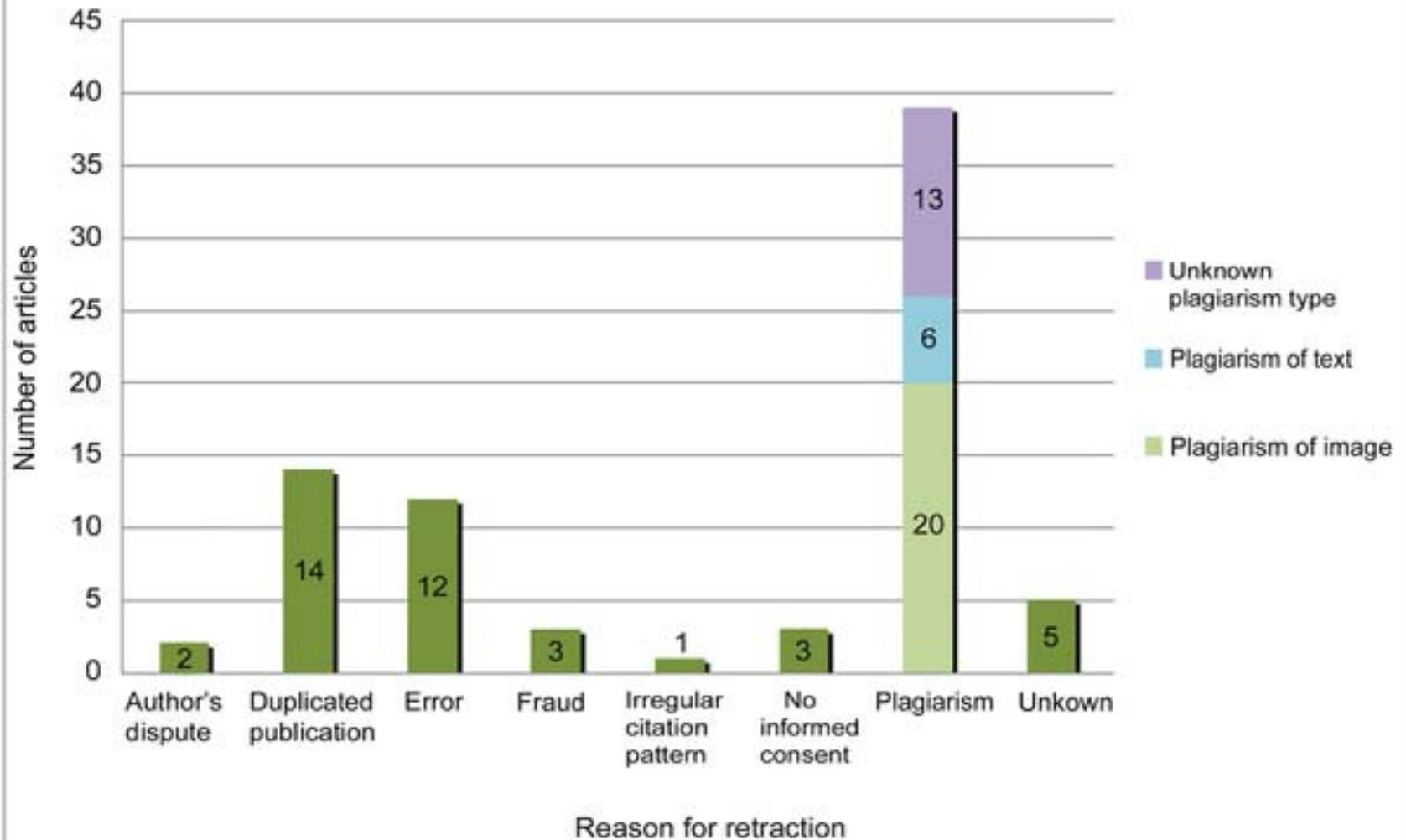
- ❖ **Proper citation of the original article:** was present in **only 22 (33%)** retraction notices; **65% retraction notices did not cite the original article**
- ❖ **Missing data at 57%** of the retraction notices retrieved. **Endorsement** by the authors (**38.4%**), **date** of retraction (**7%**), **reason** for retraction (**7%**), who **requested** the retraction (**3%**)
- ❖ **Retraction warnings:** **withdrawn/retracted band** were also nonexistent (**37%**).



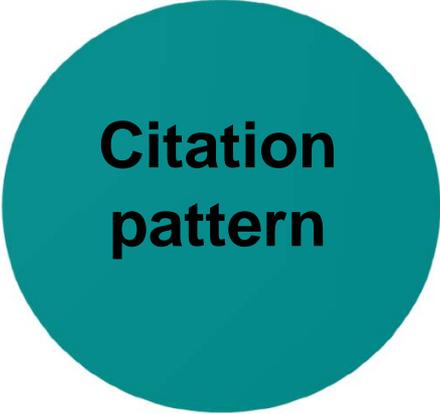
Reason

- ❖ Thirteen articles (20%) were retracted for at least two distinct reasons;
- ❖ **Fraud** was responsible for the retraction of three articles: two were retracted for image manipulation and one for data manipulation;
- ❖ Errors were attributed to inappropriate statistical analysis (n = 4), study design (n = 2) and inadequate data collection (n = 6).

Fig 2. Count of articles by reason for retraction.

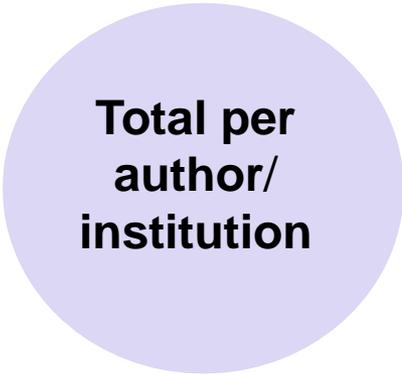


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<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0214272>



Citation pattern

- ❖ Positive-citation pattern: 37%
- ❖ Negative-citation pattern: 63%



**Total per
author/
institution**

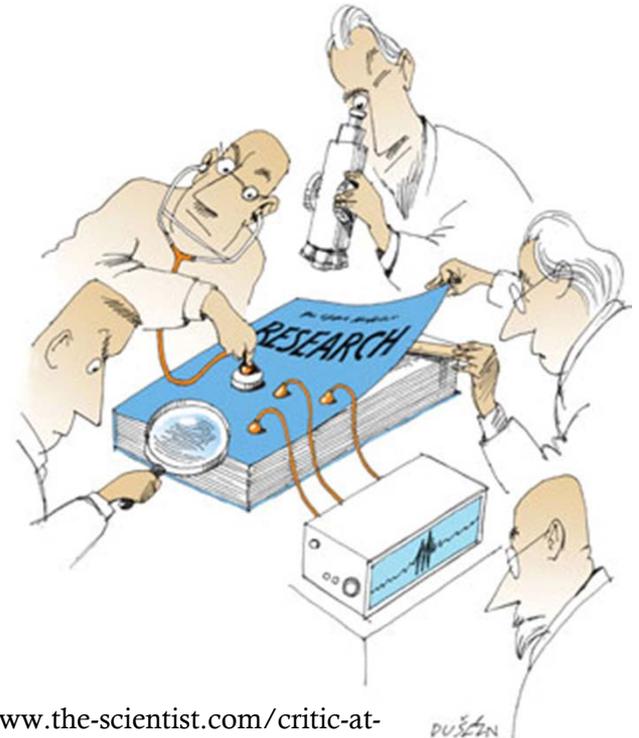
- ❖ **26** Brazilian institutions had at least one research article retracted;
- ❖ 20 (**77%**) public institutions and 5 (**19%**) were private institutions.
- ❖ The University of São Paulo was the institution with the highest number of retracted publications ($n = 17$), followed by the University of Campinas ($n = 16$).

What is the purpose of a retraction if not to be used to avoid more scientific misconduct?

Challenges

1. Transparency
2. Wording
3. Disparities

The role of distinct actors in the publication of retractions



Dusan Petricic. Available at: <https://www.the-scientist.com/critic-at-large/misconduct-around-the-globe-39243>

Limitations and Strengths

- ❖ **Incomplete information** of the retraction notices reduced the accuracy of our analysis.
- ❖ **Original paper's quality** was not evaluated and therefore, it is not possible to draw conclusions regarding the relationship between the research quality and retraction. Further investigations should be performed with this purpose since it is known that a retraction does not necessarily indicate a completely invalid study .
- ❖ Since research integrity is a worldwide concern, **despite the fact that this review considered only Brazilian institutions**, its findings provide useful insights and could serve as a basis for future investigations.

Questions ?

References

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