

The Impact of Information Quality on Retracted Bioinformatics Literature

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Abstract. One of the biggest challenges facing biomedical research today is the lack of reproducibility in findings. In response, a growing body of literature has emerged to address this. However, much of this focuses on bias and methods, while little addresses the issue of information quality. The purpose of this poster is to determine the role of information quality for retracted bioinformatics literature.

1. Introduction

Irreproducibility continues to be one of the more emerging issues in recent biomedical research. Much has been written about its negative impact on the progression of biomedical science and ultimately patients [1], with guidelines proposed [2,3]. Few of these, however, address the impact of low information quality (IQ). In this poster, the IQ issues found in retractions are discussed, and corresponding patterns analyzed.

2. Method

The Retraction Watch database [4] was filtered by: Retraction or other Notices From Date value 1/1/2018, To value 12/31/2018, and Reason(s) for Retraction value “Concerns/Issues About Data” which resulted in 124 retractions with fields such as Subject, Journal, Publisher, Original Paper Date, Retraction date, and Country. Of these, 119 were classified for associated IQ dimension by 2 independent coders. After obtaining the Scimago Journal Rank of each record, statistical analysis was then done.

3. Results

54% of retractions were due to the Believability dimension of IQ. China was the most prevalent country being involved in 32% of all records, followed by India 24%, and the U.S. 19%. SJR score comparisons indicate records involving the top 2 IQ reasons (Believability & Wrong data used) are associated with higher-ranking journals ($p = 0.05$), as well as significant differences between regions ($p = 0.02$). Articles published in the U.S. & Canada through publishers other than Elsevier, PLoS & Springer were 3.3 times less likely to be associated with Believability than all other articles ($p = 0.05$). Survival analysis indicates studies having Biochemistry as a subject have a half-life of 33.8 months and remain in publication longer than those with other subjects.

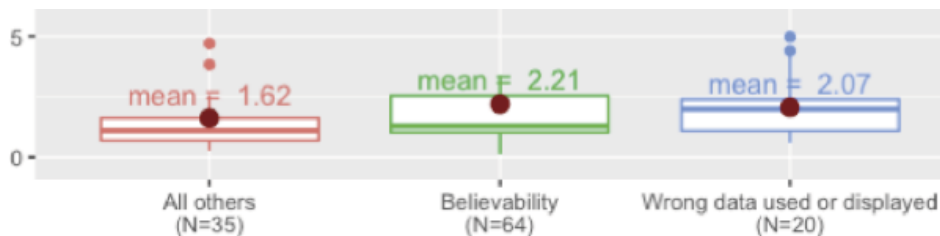


Figure 1. the association of higher journal scores with the top 2 IQ issues.

Table 1. Articles least associated with Believability

	Believability	All other issues
U.S. & Canada articles not published by Elsevier, PLoS & Springer	4	10
All other countries & publishers	60	45

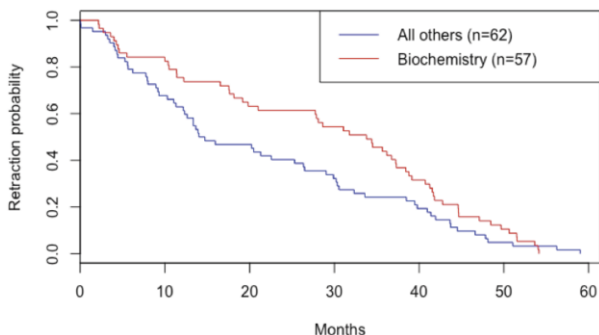


Figure 2. survival analysis showing how those with Biochemistry subject remain in publication longer.

4. Discussion & Conclusion

Our aim was to investigate what role IQ plays for retracted bioinformatics studies. While Believability is the most prevalent, others are associated with countries, subjects, and longevity in months published. Future work could involve expanding to a wider date range, as our study design was limited to calendar year 2018.

References

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