Transparency in Research: A Cross Sectional Analysis Across Scientific Disciplines

Mario Malički, IJsbrand Jan Aalbersberg, Lex Bouter, Adrian Mulligan, Gerben ter Riet

Academisch Medisch Centrum
Universiteit van Amsterdam

VU VRIJE UNIVERSITEIT AMSTERDAM

Amsterdam University of Applied Sciences

ELSEVIER

Project: Fostering Transparent and Responsible Conduct of Research
What can journals do?

Steps 1,2
- Systematic review of studies analysing ItAs
- Analysis of 2017 ItAs across all scientific fields

Step 3,4
- Interactive sessions on current practices
- **Survey of editors, authors and reviewers**

Step 5,6
- Interactive sessions on future of publishing
- Recommendations on what can journals do

Project website: https://data.mendeley.com/datasets/53cskwwpdn/1

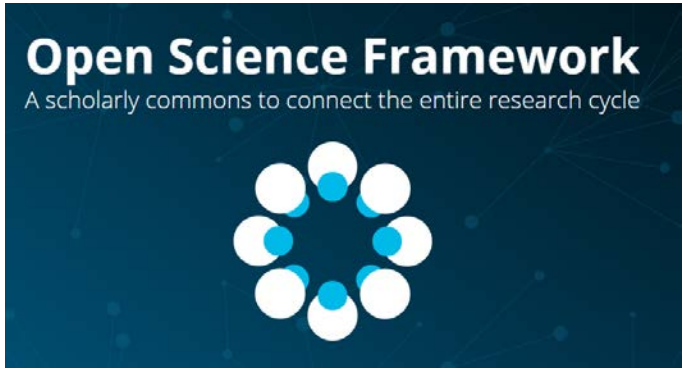
Scientific publishing has changed

- structured format
- no of authors and joint authorship
- open access
- impact factor, altmetrics
- study registration
- reporting guidelines
- data sharing
- pre-prints
- replication studies

TOP Guidelines

- Citation Standards
- Data Transparency
- Analytic Methods (Code) Transparency
- Research Materials Transparency
- Design and Analysis Transparency
- Study Preregistration
- Analysis Plan Preregistration
- Replication

Center for Open Science - 2015



METHODS – cross-sectional study

- 100,000 randomly selected authors from Scopus

- e-mails sent: 24 April 2018
- reminders: 9 and 24 May
- closed: 12 June 2018

- 1 question to identify peer reviewers, authors and editors

100,000 emails sent → 25,251 invalid → 3,659 responses → 4.89% response rate

Authors	3459 (94%)
Reviewers	2209 (60%)
Editors	434 (12%)

Male	2037 (64%)
Female	1055 (33%)
Prefer not to say	76 (2%)

126 Countries
USA, India, UK, Brasil, Spain, China

University	1976 (62%)
Research institute	607 (19%)

TOP Guidelines – Authors must	(Strongly) Agree %
Cite all data, methods, code and materials	**95**
Indicate if data will be made available/shared	**83**
Deposit all data and code in a repository	**60**
Follow appropriate reporting guidelines	**74**
Pre-register their studies	**21**
Include data analyses in preregistration	**23**
Journals must replicate analysis	**50**
Journals must employ two stage review for rep.	**36**

Perceptions of the work climate	(Strongly) Agree %
I sacrifice the quality of publications for quantity	**20**
Funders interfere in study design or reporting	**14**
Time for peer review has neg. imp. on my career	**24**
I share my research data with other researchers	**79**
It is difficult to publish null or negative results	**73**
Peer-review quality for my publications was high	**66**
Quality of mentoring PhDs is high	**53**
Quality of publications in my field is high	**64**

Prevalence of (detrimental) research practices	(Very) Prevalent %
Fabrication or falsification (incl. image manipul.)	**11**
Plagiarism	**13**
Not citing relevant research	**33**
Undeclared conflicts of interest	**14**
Guest or gift authorship	**38**
Ghost writing	**15**
Sharing raw data	**20**
Use of pre-prints	**19**

LIMITATIONS and NEXT STEPS

- small response rate/ response bias
- use survey weights to address the response bias
- conduct regression analyses
- analyse open ended responses

Conclusions

Researchers, peer reviewers and editors have not yet embraced all the principles of the top guidelines, especially in regards to pre-registration of studies and data sharing

Manipulation of authorship was the most prevalently reported determinantal practice

Quality of mentorship of young researchers was regarded as low by almost half of respondents

Funding: This study was funded by Elsevier.

Competing interests: IJsbrand Jan Aalbersberg is Senior VP of Research Integrity at Elsevier, and Adrian Mulligan is a Research Director for Customer Insights at Elsevier. Other authors declare no competing interests.

Acknowledgments: We would like to thank our survey and survey pilot respondents for their valuable inputs.

Thank you!

- Mario Malički: mario.malicki@mefst.hr
- IJsbrand Jan Aalbersberg: IJ.J.Aalbersberg@elsevier.com
- Lex Bouter: lm.bouter@vu.nl
- Adrian Mulligan a.mulligan@elsevier.com
- Gerben ter Riet: g.terriet@amc.nl

Project website: https://data.mendeley.com/datasets/53cskwwpdn/1