

# Elucidating the effects of peer review: a living synthesis of studies on manuscript changes

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## ABSTRACT

**Objective.** The ability of peer review to improve the scientific endeavour, e.g., conduct, reporting, and validity of study findings, is increasingly being questioned (Tennant & Ross-Hellauer, 2020) and calls have been made to showcase changes that occurred to each study due to peer review (Limbu, 2020). Until such transparency is achieved, our objective is to identify and collect studies that analysed differences between preprints or submitted manuscripts and peer reviewed journal articles.

**Design.** We identified studies based on our knowledge of the field and by checking all research at peer review conferences (presented as podium presentations or posters). We also checked references of identified studies. For all included studies we then extracted the year of publication, sampling method, conflicts of interest, funding, data and protocol sharing, number of analysed version-pairs, sample size calculation, scholarly discipline, method used to compare versions, variables (i.e., manuscript sections) analysed for changes, and metric with which the changes were quantified or qualitatively classified. Future steps will include a search of bibliographic databases (and preprint servers) and launching of an online form that will allow anyone to submit missed studies for inclusion in the review. Current findings are only descriptive, but meta-analyses are planned.

**Results.** Of 25 studies published from 1990 till the end of 2021, 16 analysed changes between submitted and published papers and 9 between preprints and published papers. Changes were most often analysed by filling out questionnaires or scoring each of the two manuscript versions separately (n=11) or by comparing them visually (n=6). Median number of analysed version-pairs was 59 (IQR, 41-122). Most studies analysed changes in health (n=18) or social sciences (n=4) manuscripts. Overall, they find a very high similarity between version-pairs, with largest changes occurring in introduction and discussion sections.

**Conclusions.** Current results indicate that submitted or pre-printed manuscript versions and their peer-reviewed journal version are very similar, with main (analysis) methods and main findings rarely changing. Quantification of these results is pending. Large differences between studies, type of changes, and methods with which they were measured indicate greater need for collaboration in the peer-review field and for core outcome measures for manuscript version changes.

## KEYWORDS

peer review; preprints; authorship

## REFERENCES

- ▶ Limbu, S. (2020). Building trust in peer review: A Q&A with Dr Mario Malički. <http://blogs.biomedcentral.com/on-medicine/2020/09/18/building-trust-in-peer-review-a-qa-with-dr-mario-malicki/>
- ▶ Tennant, J. P., & Ross-Hellauer, T. (2020). The limitations to our understanding of peer review. *Research Integrity and Peer Review*, 5(1), 6. <https://doi.org/10.1186/s41073-020-00092-1>