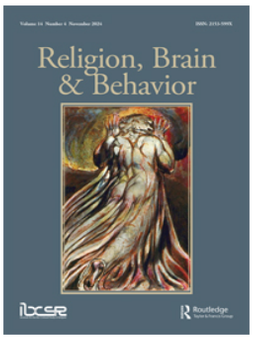

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Religion, Brain & Behavior adopts stricter transparency standards

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EDITORIAL

Religion, Brain & Behavior adopts stricter transparency standards

The distinction between science and non-science critically depends on making discoveries that can be confirmed by others. Indeed, when the evidence for a scientific discovery cannot be independently verified, it is no discovery at all. In other words, good science means open science. This is not the only kind of knowledge that matters; the humanities rightly prize personal perspectives and varied social contexts that generate valuable insights and build wisdom and understanding. By contrast, science sets a narrower goal, aiming to build agreement among qualified experts by abstracting from the person who generates the insight and their social context. Important measures of success are therefore transparency and replication.

The replication crisis has demonstrated that we will not achieve this scientific goal naturally or spontaneously. It's going to take work. Sobering statistics on replication have spurred the open science movement. Consider a summary of the state of replication in 2012, when the Open Science Foundation launched its Reproducibility Project in Psychology:

> There exists very little evidence to provide reproducibility estimates for scientific fields, though some empirically informed estimates are disquieting (Ioannidis, 2005). When independent researchers tried to replicate dozens of important studies in cancer, women's health, and cardiovascular disease, only 25% confirmed the original result (Prinz et al., 2011). In a similar investigation, Begley and Ellis (2012) reported a meager 11% replication rate. In psychology, a survey of unpublished replication attempts found that about 50% replicated the original results (Hartshorne & Schachner, 2012; see also Wager et al., 2009 for neuroscience). (Open Science Collaboration, 2012, p. 4)

Since then, studies in numerous fields have generated statistics on replication.

- In psychology, Klein et al. (2014) tested variation in the replicability of 13 classic and contemporary psychological effects (10 replicated consistently). And the Open Science Collaboration (2015) attempted to replicate 100 experiments published during 2008 in three top psychology journals and found that only 36% successfully replicated.
- In economics, Camerer et al. (2016) successfully replicated two thirds of 18 selected experimental studies from top journals (*Quarterly Journal of Economics* and *American Economic Review*).
- In social science, Camerer et al. (2018) attempted to replicate 21 social science experiments published in prestige journals (*Nature* and *Science*) between 2010 and 2015; 13 (62%) replicated (in the specific sense that significant effects were in the same direction as the original studies), though effect sizes in replications were smaller.

Moreover, the institutional realities of academic publication rarely incentivize replication studies. Recently, Clarke et al. (2024) examined articles in the 100 highest impact psychology journals from 2010 to 2021 and found a mere 0.2% (169 articles out of 84,834) were direct replications, which is in striking contrast with the widespread narrative about replication being a cornerstone of science. *RBB* editors will return to the issue of supporting replication studies in a future editorial but, as Clarke and colleagues argue, their results show that "it would be premature to declare that psychology's replication crisis is over" (p. 1).

Not only is there a poor record of replication in the social sciences, but transparency in published work is also inadequate, as the following recent studies indicate.

- Nuijten et al. (2016) examined the prevalence of statistical reporting errors in psychology (1985-2013), underlining the need for data and code to evaluate the reliability of analyses.
- Hussey (2023) studied how often "Data available upon request" statements are really true, finding that researchers often don't share data despite statements promising to do so.
- Hardwicke et al. (2024) studied empirical psychology articles published in 2022 and found that the prevalence of transparent research practices in is still woefully low, suggesting that researchers don't change unless transparency becomes mandatory for publication.
- Heathers (2024) boldly asserted that approximately 1 in 7 scientific papers are fake to some significant degree, concluding that it is difficult to detect concocted research, and also difficult to dissuade people from trying to publish it, unless raw data appear in the paper.

Social-science journals have a key role to play in response to these concerns: they must prioritize transparency to improve the credibility and verifiability of published research. Open science practices—such as sharing of data, materials, and code, as well as preregistration when appropriate—are essential for allowing independent verification of findings and identifying accidental errors, questionable research practices, and outright fraud. We journal editors can also encourage transparency in authorship criteria, peer-review procedures, and the handling of scientific misconduct. Indeed, the situation is steadily improving, at least at the level of editorial expectations at several journals (for an inspirational example of particularly rigorous standards for transparency see the recent editorial from the prestigious journal *Psychological Science*, Hardwicke & Vazire, 2024).

RBB editors are making two moves to encourage the lofty goals of scientific discovery and publication staring in 2025.

First, *RBB* is adopting the Transparency and Openness Promotion (TOP) Guidelines, Level 2 (Nosek et al., 2015; see most recent version at https://osf.io/ud578). They cover a range of open science practices, such as data sharing, code sharing, materials sharing, design and analysis transparency, preregistration, and replication. Journals differ in terms of goals, content, and resources, so it is important that the journal editors allow for implementing the TOP Guidelines at different levels of stringency. For example, Level 1 requires authors to state whether their data are available and, if so, where to access them. Level 2 mandates posting data to a trusted repository. Level 3, the highest standard, adds independent verification of reported analyses. By implementing the TOP Guidelines at level 2, *RBB* editors are signaling our commitment to transparency, providing clear expectations for authors and reviewers, and improving the quality of the science that gets published.

Second, *RBB* will be revising and updating guidelines and procedures to maintain a consistent and transparent editorial process. We have a responsibility to ensure that journal instructions are up-to-date and comprehensive. These will cover:

- Authorship criteria, author contributions, and authorship declarations;
- The peer-review process, stating whether reviews are anonymous, outlining expectations for reviewer conduct, establishing systems for evaluating reviewer performance and addressing complaints about editorial decisions; and
- Conflicts of interest, including procedures for handling submissions from editors or editorial board members and methods for handling financial conflicts related to research sponsorship or advertising in journals.

By adopting these policies and clearly communicating them to authors and reviewers, *RBB* editors intend to help create a more transparent and accountable publication process. Science is one of the most stunning cooperative achievements of our species. It needs to be carefully nurtured and protected, and never taken for granted.

References

Begley, C. G., & Ellis, L. M. (2012). Raise standards for preclinical cancer research. *Nature*, *483*(7391), 531–533. https://doi.org/10.1038/483531a

Camerer, C. F., Dreber, A., Forsell, E., Ho, T.-H., Huber, J., Johannesson, M., Kirchler, M., Almenberg, J., Altmejd, A., Chan, T., Heikensten, E., Holzmeister, F., Imai, T., Isaksson, S., Nave, G., Pfeiffer, T., Razen, M., & Wu, H. (2016). Evaluating replicability of laboratory experiments in economics. *Science*, *351*(6280), 1433–1436. https://doi.org/10.1126/science.aaf0918

Camerer, C. F., Dreber, A., Holzmeister, F., Ho, T.-H., Huber, J., Johannesson, M., Kirchler, M., Nave, G., Nosek, B. A., Pfeiffer, T., Altmejd, A., Buttrick, N., Chan, T., Chen, Y., Forsell, E., Gampa, A., Heikensten, E., Hummer, L., Imai, T., …, Wu, H. (2018). Evaluating the replicability of social science experiments in *nature* and *science* between 2010 and 2015. *Nature Human Behaviour*, *2*(9), 637–644. https://doi.org/10.1038/s41562-018-0399-z

Clarke, B., Lee, P. Y. K., Schiavone, S. R., Rhemtulla, M., & Vazire, S. (2024). The prevalence of direct replication articles in top-ranking psychology journals. *American Psychologist*. Advance online publication. https://doi.org/10.1037/amp0001385.

Hardwicke, T. E., Thibault, R. T., Clarke, B., Moodie, N., Crüwell, S., Schiavone, S. R., Handcock, S., Mody, D., & Vazire, S. (2024). Prevalence of transparent research practices in empirical psychology articles published in 2022: A cross sectional study. https://osf.io/yck93/.

Hardwicke, T. E., & Vazire, S. (2024). Transparency is now the default at psychological science. *Psychological Science*, *35*(7), 708–711. https://doi.org/10.1177/09567976231221573

Hartshorne, J. K., & Schachner, A. (2012). Tracking replicability as a method of post-publication open evaluation. *Frontiers in Computational Neuroscience*, *6*, 8. https://doi.org/10.3389/fncom.2012.00008

Heathers, J. (2024). Approximately 1 in 7 Scientific Papers Are Fake. https://osf.io/s4gce.

Hussey, I. (2023). Data is not available upon request. (Forthcoming in Meta-Psychology) https://osf.io/preprints/psyarxiv/jbu9r.

Ioannidis, J. P. A. (2005). Why most published research findings are false. *PLoS Medicine*, *2*, e124. doi:10.1371/journal.pmed.0020124

Klein, R. A., Ratliff, K. A., Vianello, M., Adams, R. B., Bahník, Š., Bernstein, M. J., Bocian, K., Brandt, M. J., Brooks, B., Brumbaugh, C. C., Cemalcilar, Z., Chandler, J., Cheong, W., Davis, W. E., Devos, T., Eisner, M., Frankowska, N., Furrow, D., Galliani, E. M., …, Nosek, B. A. (2014). Investigating variation in replicability: A "many labs" replication project. *Social Psychology*, *45*(3), 142–152. https://doi.org/10.1027/1864-9335/a000178

Nosek B. A., Alter G., Banks G. C., Borsboom D., Bowman S. D., Breckler S. J., Buck S., Chambers C. D., Chin G., Christensen G., Contestabile M., Dafoe A., Eich E., Freese J., Glennerster R., Goroff D., Green D. P., Hesse, B., Humphreys, M., …, Yarkoni T. (2015). Promoting an open research culture: Author guidelines for journals could help to promote transparency, openness, and reproducibility. *Science*, *348*(6242), 1422–1425. doi: 10.1126/science.aab2374

Nuijten, M. B., Hartgerink, C. H. J., van Assen, M. A. L. M., Epskamp, S., & Wicherts, J. M. (2016). The prevalence of statistical reporting errors in psychology (1985–2013). *Behavior Research Methods*, *48*(4), 1205–1226. https://doi.org/10.3758/s13428-015-0664-2

Open Science Collaboration. (2012). Reproducibility Project: Psychology. https://osf.io/sejcv.

Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, *349*, aac4716. doi:/10.1126science.aac4716

Prinz, F., Schlange, T., & Asadullah, K. (2011). Believe it or not: How much can we rely on published data on potential drug targets? *Nature Reviews Drug Discovery*, *10*(9), 712–712. https://doi.org/10.1038/nrd3439-c1

Wager, T. D., Lindquist, M. A., Nichols, T. E., Kober, H., & Van Snellenberg, J. X. (2009). Evaluating the consistency and specificity of neuroimaging data using meta-analysis. *Neuroimage*, *45*(1), S210–S221. https://doi.org/10.1016/j.neuroimage.2008.10.061

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