



Editorial: Announcing Preregistered Reports

Jennifer Vonk^{1*} & Mark A. Krause²

¹ Oakland University, Rochester, MI, 48309

² Southern Oregon University, Ashland, OR, 97520

*Corresponding author (Email: vonk@oakland.edu)

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In 2016, the editors of *Animal Behavior and Cognition* initiated the call for submissions of several unique article formats. One of these formats was the peer-reviewed, preregistered report. This initiative is very important to the field as this journal is now the first to review and publish preregistered reports in the area of comparative psychology, and animal behavior more broadly. The practice of preregistering scientific reports is particularly critical in the study of animal behavior and cognition for many of the same reasons outlined by Stevens (2017) when discussing the replicability and reproducibility crisis in comparative psychology. When nonverbal organisms are the focus of study, researchers are challenged by the fact that subjects cannot report on the mechanisms underlying their decisions and cannot verify their comprehension of experimental instructions. These unique challenges present a particular burden to the researcher to be open to multiple alternative explanations for observed behaviors. It is often possible to interpret results in such a way as to favor the most psychologically exciting version of the data. Reports of animals behaving in complex ways or purported evidence of animals engaging in cognitive processes that mirror those of humans receive large amounts of media attention and are highly likely to be published in high impact journals. Sometimes the excitement garnered by such findings appears to override the importance placed on the rigor of the scientific methods that led to such findings. Study preregistration requires authors to clearly state *a priori* hypotheses about the data they plan to collect. This is simply good scientific practice that is all too often forgotten and ignored, and, with regard to comparative psychology, could serve to reign in some of the exuberance that leads to over-interpretation of animal behavior.

Rigorous studies that fail to replicate high profile findings, or results that fail to provide evidence of human-like abilities in other species are more difficult to publish. The file-drawer problem in psychology has long been acknowledged (Howard et al., 2009). However, null results, when emerging from a well-designed experiment, can be as informative as statistically significant results. In addition to the difficulty with publishing null results, it is more difficult to replicate findings with exotic species compared to findings with humans given that only a small number of researchers have access to study particular species. Thus, there is an ethical responsibility to ensure that experiments on nonhumans are rigorous and that findings from those studies are presented in a cautious manner. Pre-registering safeguards against the issue of publication bias because the plan for the study can be pre-reviewed to ensure that even null results are meaningful, and if obtained, there will be no bias against publishing them.

Another scientifically suspect practice that study preregistration avoids is hypothesizing after results are known (HARKing). The premium placed on significant results in scientific publishing encourages HARKing. Here, an unexpected difference between treatment groups becomes meaningful if one can make an *a posteriori*, yet plausible, story of why the observed pattern of results was obtained. This issue may also be especially prevalent when working with nonhumans given that small samples sometimes necessitate the examination of individual patterns rather than large group averages. Idiosyncratic findings can, thus, sometimes be given more attention than they deserve because of a need to explain findings from each individual studied. Furthermore, animals often behave in a manner not anticipated by human minds that lack the perceptual pathways and concepts held by nonhumans. Researchers are then forced to conjure explanations that did not align with existing theory and which may not be useful moving forward.

Encouraging publication of preregistered reports will emphasize rigorous scientific methodology over ‘flashy’ findings by permitting researchers to publish their findings regardless of the pattern of results, as long as the methods were appropriate for testing the stated hypothesis, and hold the potential for yielding meaningful and interpretable results. Thus, *Animal Behavior and Cognition* welcomes submissions that provide a clear rationale for a planned study or series of studies, the results of which will be informative regardless of the actual results obtained.

We are delighted to announce the publication of our first peer-reviewed, preregistered report in this issue. In this study, researchers found no evidence for the decoy effect using an innovative task preference paradigm in rhesus macaques (Parrish, Afrifa, & Beran, this issue), despite previous findings of such an effect in the same species using a perceptual paradigm (Parrish, Evans & Beran, 2015). Such results are important in delineating the extent and boundaries of cognitive phenomena. The final report follows the plan outlined in the accepted peer reviewed preregistered report, which is accessible via hyperlink from the final published article. The final report also includes an additional experiment, which was not pre-reviewed, but which became necessary based on the results of the planned experiment. Inclusion of the additional experiment was approved by the acting editor, and is clearly indicated as such in the paper. We strongly encourage authors to submit preregistered manuscripts, which will allow them to provide a clear rationale and detailed methodology for a novel experimental procedure or a replication report. We anticipate that the publication of preregistered reports will have a significant positive impact on the integrity of our science. Interested authors can find instructions [here](#).

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