

Dr. Stavroula Kousta
Editor, *Nature Human Behavior*

April 3, 2020

Dear Dr. Kousta,

We have enclosed a Matters Arising response to an article by Kvarven, Strømmland and Johannesson recently published in *Nature Human Behavior*. The original article compared the effect size estimates derived from meta-analyses and from pre-registered multiple-laboratory replication projects (MLR), and found that meta-analytic effect sizes were nearly three times larger than their MLR counterparts. These findings potentially undermine the value of the meta-analytic method. In our response, “The puzzling relationship between multi-lab replications and meta-analyses of the rest of the literature,” we argue that both meta-analysis and MLR are informative but that the relationship between them is an important puzzle for future meta-research.

Importantly, the authors suggest that the effect size discrepancy between meta-analyses and MLRs may be due to questionable research practices in the extant literature that meta-analyses draw upon. Through re-analysis of the original data, we show that even under “worst-case” scenarios of publication bias, there is still a discrepancy between the two. We also provide evidence that heterogeneity in the meta-analyses is unlikely to fully account for the discrepancy. We conclude by discussing several potential explanations for the unexplained discrepancy in effect sizes between MLRs and meta-analyses.

The question addressed by Kvarven et al. is a deeply important one -- understanding what methods to use to best estimate the size of an effect is fundamental to scientific progress, given limited time and resources. We believe our response will further the meta-scientific discourse around this important puzzle.

Thank you for your consideration and please do not hesitate to contact us with any questions or concerns.

Best,

Molly Lewis
Carnegie Mellon University
(on behalf of all authors)