Dear Editor and reviewers,

We kindly thank you for the positive feedback on the paper. The suggestions and comments were valuable in improving the quality of the manuscript.

* Psicostat is listed as a group author; would it not be more appropriate to list this group as the last author, as is often done in comparable cases of group authorships (see also the APA publication manual, 7th ed.)? This is no requirement from my side, I just wondered and leave this issue up to the editor.

In deciding the authorship order, we opted to place as the last author the person who played the most significant supervisory role in the development of the paper. Psicostat is acknowledged as a contributing group, but it did not have this specific role. For this reason, we believe that the current ordering best represents the contributions of all involved authors. That said, we are flexible on this point and leave the final decision to the editor, should they prefer to list Psicostat as the last author instead.

- p. 4, lines 51-57 (“These include …”): probably provide some recent refs. for the listed examples.

We added Cumming et al., 2012 and APA publication manual, 7th ed.

* p. 5 end of paragraph 1: probably cite Anvari et al. (2023; of which Daniel Lakens is also a co-author) and some sentences on the contents of this study here? This could make the point of practically insignificant effect sizes more tangible to readers.

We have now added the following sentences and the reference: “Studies with very large samples are well-powered to detect even small effect sizes, but they also require researchers to carefully consider the possibility that an effect might be statistically significant, but practically insignificant (Anvari et al., 2023). The risk is that researchers will heuristically or opportunistically accept all effects as potentially important. For this reason ”researchers need to explicitly state the mechanisms that can amplify the importance of an observed effect size and the mechanisms that counteract it” (Anvari et al., 2023, p. 504).”

* p. 5, heading: typo in the word “Determination”

We have corrected the typo, thank you for finding it.

* p. 5, last line: SESOI is listed here the first time, and it is mentioned a few times in the rest of the paper as well. Daniel Lakens used the term smallest effect size of interest in the exact same sense as critical effect size in the past (e.g., see <https://daniellakens.blogspot.com/2017/05/how-power-analysis-implicitly-reveals.html>). I think the change of meaning SESOI underwent since, and the current definition of SESOI, should be made explicit to readers, because otherwise they could get confused.

We integrated with the following explanation: “In case of already conducted studies with small sample sizes it could be argued that it would be more informative to use retrospective design analysis (Altoè et al., 2020), but this would require both knowledge of the plausible effect size and/or the smallest effect size of interest (SESOI), which is the minimum effect that could be considered meaningful based on practical relevance, theoretical importance and/or specific research interests (Mesquida & Lakens, 2024; Riesthuis, 2024), which are not always easy to determine.”

* p. 7, lines 39-41 (“The more complex …”): please explain how and why the complexity of the study design also increases the critical effect size value.

We integrated with the following explanation: “For example, as interaction effects are examined in addition to main effects, power may decrease because interactions are generally associated with smaller effect sizes, may require corrections for multiple tests, and interaction coefficients present larger standard errors than main effects coefficients. Such a reduction in statistical power may require a larger sample size to detect the effects of interest reliably.”

* p. 8, line 18: “meaningless” could be argued here against. For example, if there was a (new) hypothesis that predicted and explained such a, formerly, “meaningless” effect, it would cease to be “meaningless.” Probably just drop this term here.

We agree with the reviewer, but note that at that point we were reporting the concept of “crud” factor as explained by Orben and Lakens (2020). Nonetheless, to avoid suggesting that small or yet unexplained effects are theoretically meaningless, we have now rephrased that sentence: “This is especially important in correlational studies with large sample sizes in psychology, where systematic but uncontrolled sources of variability may lead to significant but very small and not meaningfully interpretable non-zero effects, a phenomenon referred to as the ‘crud factor’ (Orben & Lakens, 2020).”

* p. 9, end of paragraph 1: again, Anvari et al. could be beneficially cited and discussed here.

We have integrated that part of the paragraph as follows: “Signaling the critical effect size values beforehand can serve as a clear warning that statistically significant results should not automatically be interpreted as practically significant, thus urging caution when interpreting the results (Anvari et al., 2023). For this reason, the ongoing call to specify which effects constitute an ‘important difference’ (Boring, 1919; Hodges & Lehmann, 1954; Kirk, 1996) has become especially urgent.”

* pp. 11-14: why not present the equations presented here in-text (also) in a comprehensive table? This would probably provide a better overview of necessary computations for the different cases.

We added a table (Table 1) with the equations at the end of the section “How to Compute Critical Effect Size Values”, thank you for the suggestion.

* p. 13, line 12: emend “by” between “g” and “Viechtbauer.”

We corrected as suggested by the reviewer, thank you.

* p. 15, line 28: better cite the more recent second edition of this book (published 2021) and provide page numbers.

Thank you for the suggestion, we have provided more recent citations “Similarly to standard linear regression, hypothesis testing is performed using Wald or tests (Borenstein et al., 2021, p.338, Viechtbauer et al., 2015).”

* p. 16, first line: this information is already presented on p. 10.

Thank you for making us notice the duplication of information, we removed it at page 16 and changed the sentence in the following way: “In this section, we introduce the aforementioned user-friendly implementation of the mathematical computations as functions of the package criticalESvalue in R (currently hosted on GitHub).”

Hoping to have satisfied the requests made by the second Reviewer, we send back our work.

Thank you for all the work done,

Best wishes,

Ambra Perugini (on behalf of all co-authors)