Manual for Web Application Hybrid Extended Meta-Analysis Method

https://rcmvanaert.shinyapps.io/hyema/

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This web application can be used for meta-analyzing conventional and preregistered studies by using the Hybrid Extended Meta-Analysis Method (HYEMA) as described in van Aert (2023)[1]. HYEMA is a meta-analysis method that treats conventional and preregistered studies differently by only correcting for publication bias in the conventional studies.

Step-by-step guide for using the web application:

1) Upload data by clicking "Browse". The data should be in a .csv file and should contain at least columns with (1) the effect size estimates of the studies, (2) the sampling variances of the studies, and (3) a dummy variable indicating whether a study is a conventional study (score is 1) or a preregistered study (score is 0).

2) After uploading the data, select from the dropdown menu under "Select the variable that are the effect sizes" the variable that are the effect size estimates of the studies in the uploaded data

3) Select from the dropdown menu under "Select the variable that are the sampling variances" the variable that are the sampling variances of the studies in the uploaded data

4) Select from the dropdown menu under "Select the dummy variable indicating the conventional studies" the variable that is the dummy variable indicating whether a study is a conventional study or not in the uploaded data

5) Select whether the observed effect size in the conventional studies is in the right-tail (i.e., positive effect) or in the left-tail of the distribution (i.e., negative effect). That is, select "Right" if positive effect sizes are expected according to the hypothesis in the conventional studies or "Left" if negative effect sizes are expected.

6) Select the alpha level which is used for testing the hypothesis of no effect in the conventional studies. The default alpha level is .05. Note that the web application assumes that a two-tailed test was conducted in the conventional studies. This implies that the application internally divides the alpha level by two. If a one-tailed hypothesis tests was used in the conventional studies, the alpha level has to be multiplied by two before applying HYEMA.

7) By clicking the "Analyze" button HYEMA is applied, and the results will appear shortly

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[1] This web application is based on the R function `hybrid` in the `puniform` package. This package can be downloaded from CRAN using `install.packages("puniform")`

References

van Aert, R. C. M. (2023). Meta-analyzing non-preregistered and preregistered studies. Manuscript submitted for publication.