We created a Shiny application that allows users to upload their data and create an EGM. The app involves uploading datasets, and using point and click options to summarize data for combinations of factors. The app will then use the data to create a map using ggplot2 package (Wickham, 2011). The app contains multiple tabs, the contents of which are explained below.

In the About tab, we present information on EGMs, and instructions on how to use the app…

The Load Data tab allows users to select whether they want to use an example data or upload their own data. The example dataset is from a meta-analysis conducted to examine interventions to decrease cyberbullying (Polanin et al., 2021). The data contains … If users want to upload their own data, they can select whether to upload an effect size level data or a summary level data. Effect size level data would be a raw meta-analytic dataset with each row containing an effect size and data on variables like outcome measure, methodology, comparison type etc. related to that effect size. Summary-level data would be data that contains number of studies and/or average effect size aggregated for combination of factors.

Once users select to use example data or upload their own data, the app will prompt them to input variables necessary to create the plot. For the example data, users can select whether they want to use two factors, mapped to x-axis and y-axis of the EGM plot, or three factors, mapped to x-axis, y-axis and color. For effect size-level data, users will be prompted to input variables that the users want to map on to x-axis, y-axis or color on the plot, and variables containing effect size, variance or standard error of the effect sizes, and study identifier. For summary-level data, users will be prompted to input variables that the users want to map on to x-axis, y-axis or color on the plot, and the number of studies per combination of factors and, if they have calculated it, the average effect size per combination.

The Create Summary Data tab allows users to select parameters to run meta-regression analyses per combination of factors. If users input raw effect-size level data or select example data, they will be prompted to select a model to calculate average effect size for a combination of factors. Users can select correlated and hierarchical effects model, correlated effects model, or hierarchical effects model (Pustejovsky & Tipton, 2021, Hedges et al., 2010). These are different models used to calculate robust standard errors to account for dependent effect sizes in meta-analyses. Note that the difference in these models will be in the estimated variance of the average effects. Users can also select the value for the within-study correlation between the effect sizes. Users can then click “Create Summary Data” button, which will prompt the app to run meta-regression to calculate average effect sizes per combination of factors as well as the number of studies and the number of effect sizes per combination of factors. If users upload summary-level data, they do not need to specify any parameters and can click the “Create Summary Data” button to view the data that they have uploaded.

Users can then click on the Evidence Gap Map tab to view the EGM plot. Users have the option to overlay the plot with number of studies, average effect size, or nothing (with the default being nothing). Option to download the plot is available and user can type in the name of the image to be downloaded, and adjust height and the width of the figure.

Finally, the R Syntax provides reactive syntax corresponding to the data and variables inputted by the users, as well as any other selections they made. Users can copy the syntax, paste into R Studio, and edit the script as necessary to make any changes.