

# **Webinar: “Using the WWC Database to Supplement a Meta-Analysis”**

**July 27, 2017**

## **Answers to Questions asked by Participants**

Many questions were asked and answered during the event; please watch the recorded presentation for the answers. We received more questions than could be addressed during the webinar, so the answers to the remaining questions are provided in this document.

### **WWC Database**

**Q.** Will the findings download file ever include attrition rates and baseline equivalence estimates?

**A.** There are no plans to add these fields in the near term, but the idea is a good one for future revisions.

### **Questions answered during the event:**

- If I can't find any study related to an intervention on the WWC website, does that mean all current studies do not meet WWC criteria?
- Do we need IES permission to use WWC data for meta-analytic purposes?
- Where can we find past WWC review protocols or the protocol used for a particular WWC product?

### **Meta-Analysis**

**Q.** What is the minimum number of studies needed to conduct a meta-analysis?

**A.** Two. Although two is the minimum, we suggest using meta-analytic techniques when you have a larger pool of studies to examine, particularly if you are interested in understanding variation in effect sizes across studies.

**Q.** If you conduct a meta-analysis of WWC studies, would that justify a fixed-effect meta-analysis?

**A.** The question of whether to use a fixed-effect versus a random-effect meta-analytic model should be answered on the basis of your research question. In general, it is not recommended to use a fixed-effect model, because the estimation of the standard errors are conservative. Therefore, the only applicable scenario under which it is reasonable to conduct a fixed-effect meta-analytic model is when your research question concerns only the universe of studies that

the WWC has reviewed. If you are interested in expanding beyond the universe of WWC studies or are interested in making broader inferences, then a random-effects analytic model would be more appropriate.

**Q.** Do we need to do Egger's test for publication bias for meta-analyses?

**A.** Egger's test for funnel plot asymmetry is one type of test for publication bias. Many others pervade the literature, and we suggest reading Rothstein, Sutton, and Borenstein's (2006) influential book on publication bias. It includes many other tests that may be of interest. We suggest conducting at least one test of publication bias, and the Egger's test is simply one of many.

**Q.** The discussion here was about systematic reviews and meta-analysis for group design studies. What are your opinions regarding meta-analysis for single case research?

**A.** A great deal of research has been devoted to synthesizing single-case designs and including them in traditional two-group design meta-analyses. Indeed, Hedges, Pustejovsky, and Shadish's (2012) paper is a great resource for researchers interested in single-case meta-analysis because it includes formulas for estimating a standardized mean-difference from commonly found single-case designs in the literature. Therefore, we support the inclusion of single-case designs in meta-analysis, as long as they follow the rules outlined in the study cited here.

**Q.** Should we include a caveat in our reports, since moderator analyses limit our ability to make causal inferences?

**A.** As discussed during the webinar Q&A, when a moderator analysis is conducted, it is not possible to state for certain that differences in treatment effects are due to the moderators or some other reason, because interventions or studies are not randomly assigned to conditions. For this reason, researchers should be cautious not to make causal claims when presenting these analyses.

**Q.** What, if anything, are the most important things that are missed by not having individual-level data?

**A.** In a primary study that uses individual-level data, there will likely be less variation in the impact estimate in comparison to pooling multiple studies on the same topic. This is because, for example, studies that are pooled together in a meta-analysis may have used different research designs or data collection procedures, or the studies may have taken place during different time periods. Individual studies can yield strong causal evidence but are representative of only one particular research sample at one particular point in time. Meta-analyses that pool such studies help to support the credibility of these findings across multiple settings.

### **Questions answered during the event:**

- What are the benefits of performing WWC-only meta-analyses, rather than traditional meta-analyses (if there are any)?
- With moderator effects, how are we sure that the effects are not due to the intervention itself and not the moderator variable?
- What if the sample size is small? Can we still perform meta-regressions?

### **Software**

**Q.** Are there packages in R that allow for creation of a funnel plot and other adjustments for publication bias?

**A.** Most “general purpose” R packages include options for creating a funnel plot and estimating publication bias. Polanin, Hennessey, and Tanner-Smith (2016) provided a table that lists all features of every R package they reviewed. For general-purpose conduct of meta-analysis and the creation of funnel plots, we suggest the use of the R package metafor (Viechtbauer, 2010).

**Q.** Do you have a GitHub profile with code to analyze shared?

**A.** We do not have a Github profile. For information on how to conduct the analyses presented during the webinar, see the accompanying document with R code or the Polanin, Hennessey, and Tanner-Smith (2016) article referenced during the webinar.

### **Questions answered during the event:**

- Is the robumeta package available in Stata (or software other than R)? If so, does it differ?
- A vast majority of intervention studies in special education and applied behavior analysis use single subject research methodology. Can you suggest analytical software to calculate effect sizes for such studies that can be used for meta-analyses?
- Do the panelists recommend any other resources to learn more about using R?

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