

Policy on Meta-Analyses

Authors who plan to submit a meta-analysis for review by *Neuropsychology* are strongly encouraged to read two excellent methods articles by Robert Rosenthal (Rosenthal, 1993; Rosenthal & DiMatteo, 2002). These provide useful guidelines for information that should be included—as well as useful citations to other methodological reports and texts.

A meta-analysis differs from most other research reports in that the bulk of the raw data used in the study is included part and parcel in the research report. The core of any meta-analysis is the *effect size*, and effect sizes are routinely reported in tabular format. The sources of these effect sizes, the specific research articles reviewed, are also reported in detail. However, because these reference lists can be long and are not primary to the research article itself, *Neuropsychology* will post supplemental materials online to archive this information. As described below, authors submitting manuscripts describing meta-analyses should include separate documents that contain a list of all articles reviewed as well as certain specific tables of data. These will not be included in the published article but will be reviewed and subsequently posted as supplemental materials. These materials are widely accessible, and the URL for the materials is published with the individual article. Thus, these data can be easily accessed by students, colleagues, and interested parties.

At a minimum, the supplemental information should contain a table listing the full reference of each of the studies included in the meta-analysis. In addition, there should be a table that lists for each of the included studies the overall effect sizes of interest, the sample sizes, and any coded or rated score used as either the primary outcome measure or the moderator variable in the analysis (Rosenthal & DiMatteo, 2002, p. 423).

With regard to the Results section of the manuscript, the critical information that needs to be conveyed to the readership is not only a measure of central tendency for the effect sizes but also a set of measures of dispersion. These should include mean effect sizes (weighted and unweighted) as well as the weighted and unweighted medians. The standard deviations and interquartile ranges would

also be extraordinarily useful information.

Manuscripts should also include a visual display of the effect sizes, and our initial recommendation is to use a stem and leaf plot for each of the variables (primary or moderator) of interest. These should be included in the supplemental information and may (at the discretion of the author and editors) be included in the printed version of the article. The graphical displays provide an excellent method for quickly and easily understanding how the effects are related to the variables of interest.

Nothing in these guidelines should be construed as discouraging meta-analyses; quite the contrary. We are strongly committed to quantitative reviews of the literature, as they provide one of the best summaries of our research findings. The interpretation of meta-analyses provides the investigator the opportunity to conceptualize the underlying basis of the effects that they have identified. By emphasizing the quantitative methods of data review, we believe we will fundamentally advance our field of research. One excellent example is the contributions by the Brinley plots to our understanding of the relationship between age and information processing (e.g., Cerella, 1985; Salthouse, 1985).

Our readers should also note that these standards are a work in progress. As such, they will be revised and updated from time to time on the basis of reactions from our authors as well as changes in the field.

References

Cerella, J. (1985). Information processing rates in the elderly. *Psychological Bulletin*, *1*, 67–83.

Rosenthal, R. (1993). Cumulating evidence. In G. Keren & C. Lewis (Eds.), *A handbook for data analysis in the behavioral sciences: Methodological issues* (pp. 519–559). Hillsdale: Erlbaum.

Rosenthal, R., & DiMatteo, M. R. (2001). Meta-analysis: Recent developments in quantitative methods for literature reviews. *Annual Review of Psychology*, 52, 59-82.

Salthouse, T. A. (1985). *A theory of cognitive aging* (Vol. 28). Amsterdam: Elsevier Science.