

Meta-analysis

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Goals & topics:

A meta-analysis combines and compares quantitative results of a set of studies in which more or less the same research question has been investigated. Based on a simple data set, the goals and opportunities of meta-analysis are introduced. It will be shown how a meta-analysis on a set of studies investigating an association between two variables can result in more power and accuracy in testing and estimating the overall size of association. Besides, a meta-analysis offers the possibility to assess study heterogeneity in the association, and to investigate if this heterogeneity can be explained by one or more study characteristics. Next, some common measures of association will be examined, and it will be shown how these can be calculated based on various formats in which study results are typically reported. We will briefly discuss conceptual differences between fixed effects models and random effects models, and look at consequences of a model choice for the results and their interpretation. Finally, it will be shown how a meta-analysis can be regarded as a specific application of multilevel analysis, and how this multilevel approach offers new perspectives.

Prior experience or knowledge the participants should have.

The presentation aims at giving a conceptual rather than a statistical introduction in meta-analysis. Yet, some basic knowledge of statistical inference and linear regression is recommended.