Meta-Analysis

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Time & Place: Tuesday 11-1, Thursday 11-12, MSB E602

Text: None required, but the following texts and references below are recommended

Evaluation: 100% of grade based on final project. Conduct and report a small meta-analysis on a topic of your choosing but subject to my approval. 75% of grade will be based on completeness of reporting (inclusion of points to be presented in class), 25% will be on discussion of general conceptual issues in meta-analysis.

Course Outline:

A Brief History of Meta-Analysis
Pearson
Fisher
Glass
DerSimonian & Laird
The Cochrane Collaboration
Criticisms of meta-analysis (1) (2) (Handbook C31-32)

Searching and Evaluating the Literature (Handbook C4-8, 12)
Inclusion/Exclusion Criteria
“Quality” Criteria
Database Search
Coding Studies
Handling Missing Data
Publication Bias

Computation of Effect Sizes
The standardized mean difference and its variance (Handbook C16)
The odds ratio and relative risk and their variances (Handbook C17)
Deriving effect sizes from test statistics
Graphics for meta-analysis (Handbook C28)

Pooling Effect Sizes
Fixed effects (Handbook C19)
Random effects (Handbook C20) (3) (4)
Bayesian (Handbook C26) (5)
Summary Data Meta-Regression (6) (7)
  Fixed effects
  Random effects
  Bayesian

Individual Patient Data (IPD) Meta-Analysis (8)
  Special challenges in IPD analyses
  Application of the Hierarchical Generalized Linear Model

Special Issues
  Dependent effect sizes (Handbook C22)
  Corrections for “artifactual variance” (Handbook C21)
  Detecting publication bias (Handbook C25)

Additional Readings

Cooper H, Hedges LV (Eds.). The handbook of research synthesis. Russell Sage Foundation 1994


