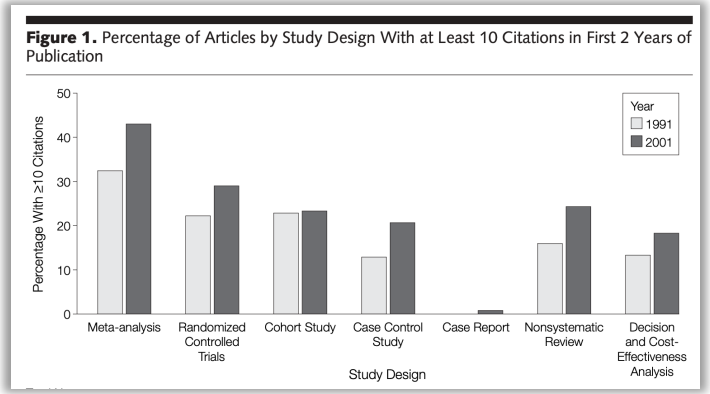
Good Meta-Analyses, Bad Meta-Analyses

- Meta-analysis has now become a universally accepted research tool.
- Conducting a high-quality primary study (e.g. an RCT) is often very costly & can take many years to finalize
- Meta-analyses can be produced with **comparatively few resources, and relatively fast**
- Nevertheless, meta-analyses often have a high impact, are frequently cited

→ Journals may be inclined to publish meta-analyses even if their merit may be limited

→ May create “unhealthy” incentives to **“mass-produce”** meta-analyses

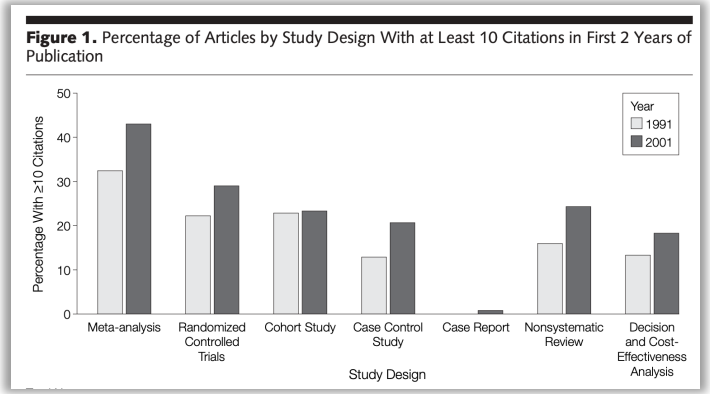


Patsopoulos et al., 2005

Good Meta-Analyses, Bad Meta-Analyses

Consequences & Problems:

- On some “hot” topics in health research, multiple & often redundant meta-analyses are published each year
- Some meta-analyses may also be heavily influenced by corporate interests (e.g., pharmacotherapy for depression; Ebrahim, 2016; Kirsch, 2002)
- Meta-analyses on overlapping research questions often come to different conclusions (prime example: meta-analyses on the “Dodo-Bird Verdict”)
- The reproducibility of many meta-analyses is often limited because important information is not reported (Lakens, 2017)



(Patsopoulos et al., 2005)

Good Meta-Analyses, Bad Meta-Analyses

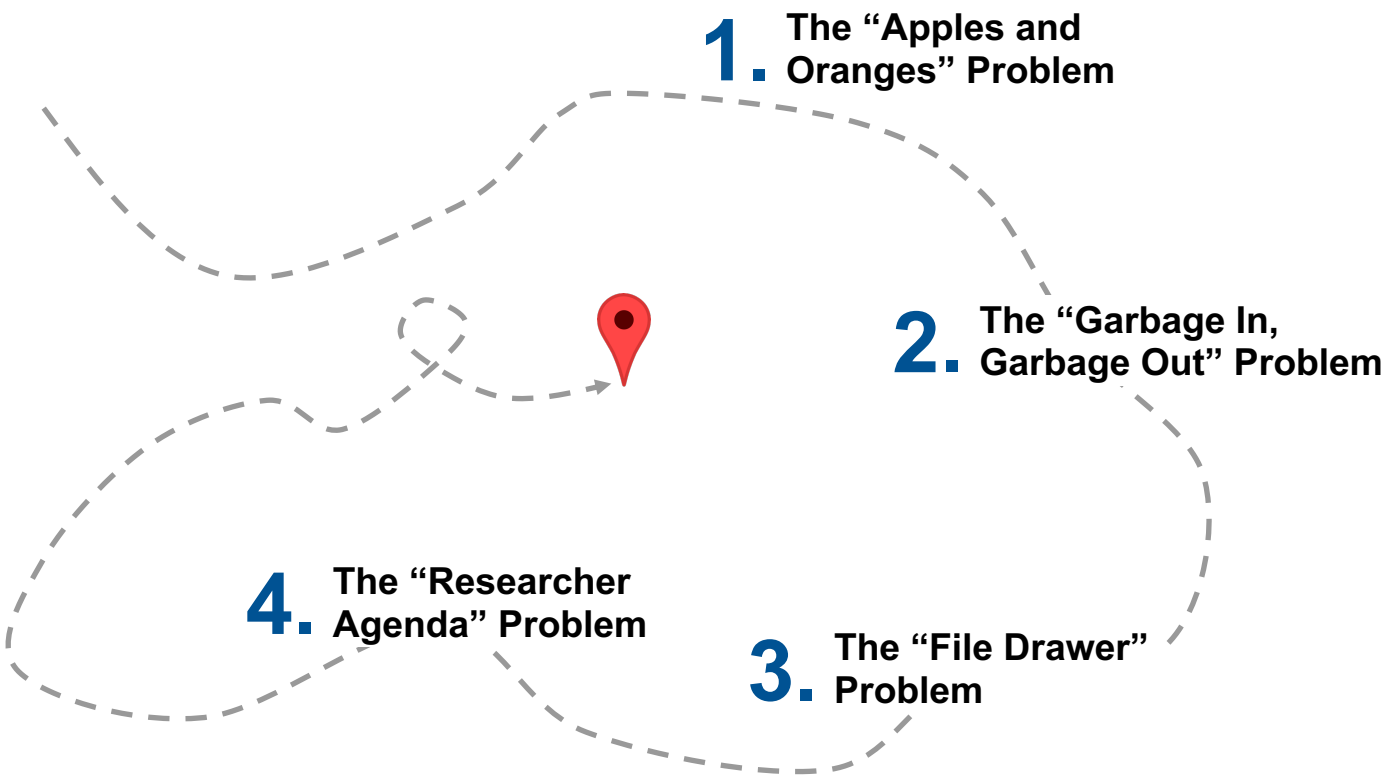
Consequences & Problems:

- → Not <u>all</u> meta-analyses provide an unbiased, comprehensive and overall trustworthy synthesis of the available evidence!
- → Some of these issues are associated with systemic problems of the scientific process
- → Others can be traced to flaws & “weak spots” of meta-analyses themselves

These pitfalls need to be addressed to create a high-quality meta-analysis

When judging the quality of a “Meta” analysis, some background knowledge can be helpful…

A Tour of Meta-Analysis Pitfalls



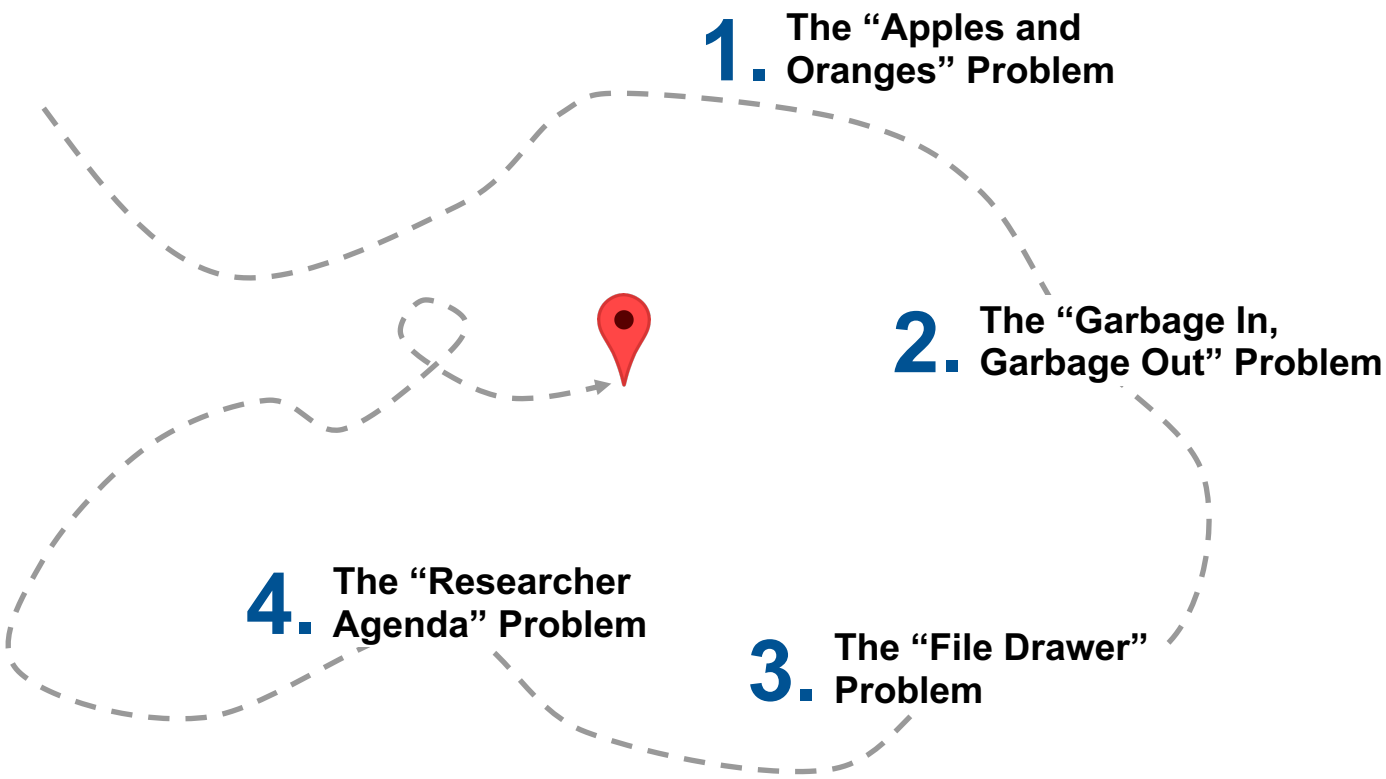
A Tour of Meta-Analysis Pitfalls

Team Work (15 min):

→ In your group, read the passage in the provided literature for the respective "weak spot" of meta-analyses (will be provided)

→ Prepare a description of the problem and its consequences, which will be presented in the entire group

A Tour of Meta-Analysis Pitfalls



A Tour of Meta-Analysis Pitfalls

Ioannidis' Criticism of Meta-Analyses

→ Read the marked sections

→ Maybe take notes for discussion

John P. A. Ioannidis

A Tour of Meta-Analysis Pitfalls

Ioannidis' Criticism of Meta-Analyses

- Following Ioannidis, what is problematic about the way meta-analyses are currently conducted?
- How can these issues be addressed?
- What can we learn from Ioannidis' criticism for our own meta-analytic research?

John P. A. Ioannidis