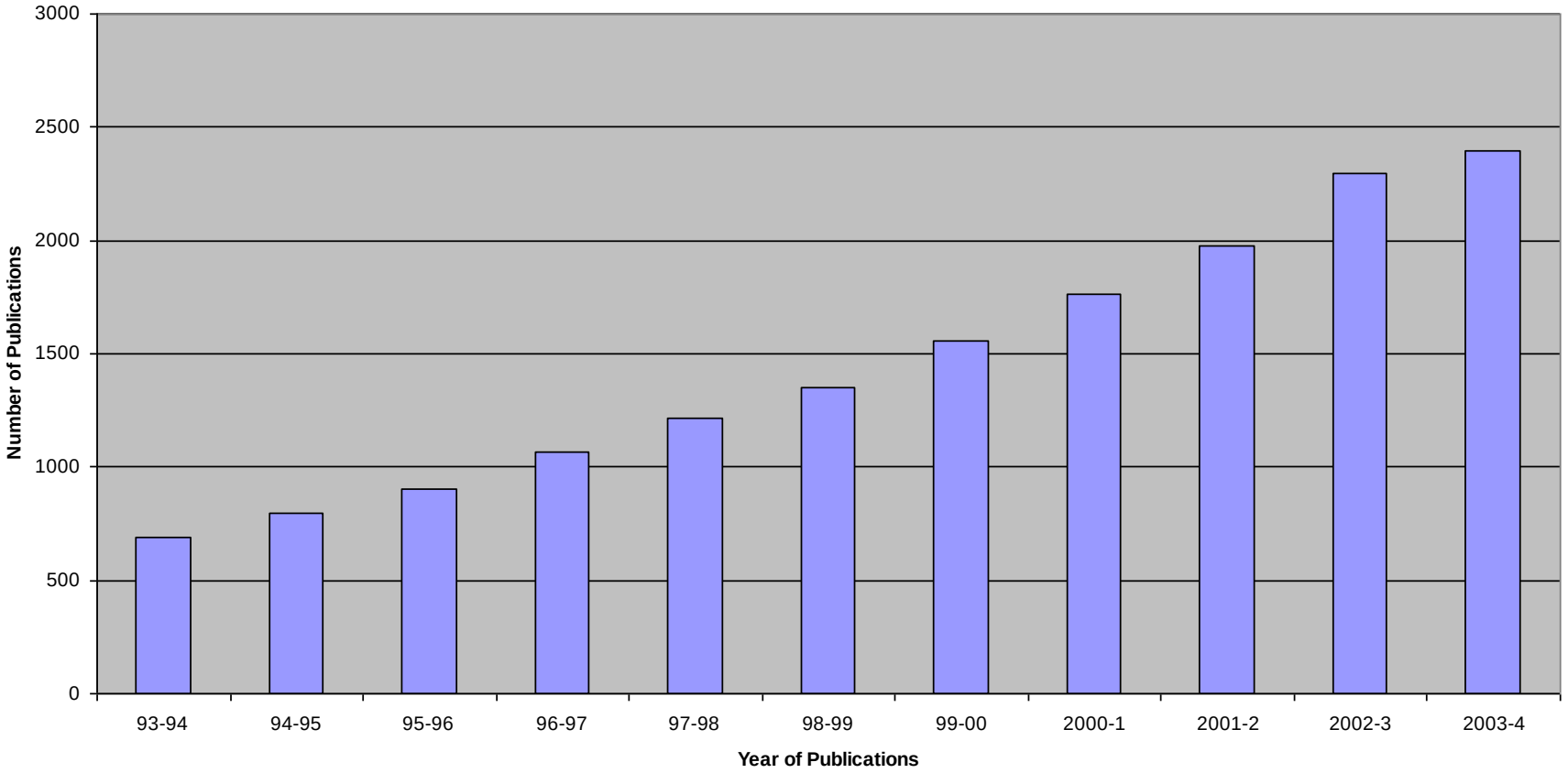
Main purposes of Meta-Analysis

1. To identify heterogeneity in effects among multiple studies and, where appropriate, provide summary measure
2. To increase statistical power and precision to detect an effect
3. To develop, refine, and test hypothesis
4. To reduce the subjectivity of the studies when compared with systematic and explicit procedures
5. To identify data gap in the knowledge base and suggest direction for future research
6. To calculate sample size for future studies

The Importance of Meta-Analysis

1. To increase the power and precision of the study
2. To quantify effect sizes and their uncertainty
3. To test if the primary studies come from homogeneous or heterogeneous groups to interpret the findings similarly or differently.
4. To answer questions most posted by individual studies.
5. To set controversies arising from conflict studies.

The popularity of meta analyses



Number of Meta Analysis publications are steadily increasing since 1993. The counts of journal articles included "meta analysis" as "publication type" from PubMed, from years 1993 through 2004

Advantages of Meta-Analysis

1. Increase the power of the study
2. Increase objectivity of the findings
3. Various plots from the study, e.g. Forest Plot and Funnel Plots make readers understand its findings much easier
4. Ready-made packages now make the analysis faster and more convenient and widely accepted
5. Produce more trustworthy studies and expand more knowledge territories
6. A main initial method creating more new bodies of knowledge via Mega-Analysis and Super-Analysis

Disadvantages of Meta-Analysis

1. Cannot solve the problems of poor primary studies
2. Cause an issue of “Combining Apples and Oranges.”
3. Many approaches to assign ES weights
4. Complication in the analysis especially on bias detection and correction
5. Minimal number of primary studies
6. Many kinds of bias involve in the analysis