Teaching meta-analysis using STATA

Nuno Lunet

Department of Hygiene and Epidemiology, University of Porto Medical School

Systematic reviews and meta-analyses contribute to the objectivity and transparency of literature reviews, and play an increasingly important role in evidence-based medicine and public health. In addition to the expertise needed for critical reading of papers using these methodologies, researchers and professionals in areas related to clinical medicine and public health also need to have the appropriate skills to conduct systematic assessments of the published literature and quantitative synthesis of the results through meta-analysis.

I describe the use of STATA in a short course aiming to introduce the essential aspects of the computation of summary estimates and exploration of heterogeneity and publication bias in meta-analyses of observational studies. The course includes three practical exercises built over real data. It starts with a "pen and paper" exercise, used to address the basic statistical methods of meta-analysis, and ends with an introduction to meta-analysis in STATA, including the calculation of summary estimates (fixed and random-effects models), the appraisal (visual inspection of funnel plots, I^2 statistics and hypothesis testing) and explanation of heterogeneity (subgroup analysis), and the assessment of bias (analysis of funnel plots).

I will emphasize the strategies adopted to enable the achievement of the course objectives by participants unfamiliar with STATA.