The NERDCAT Revision Project – A Resource for Clinicians and Students

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OBJECTIVE: To improve an existing resource that clinicians and students use to appraise medical studies

Before

After

Structure

Two PDF checklists with interspersed information

Two fillable Google Doc checklists supported by an accompanying Pressbook textbook (www.nerdcat.org)

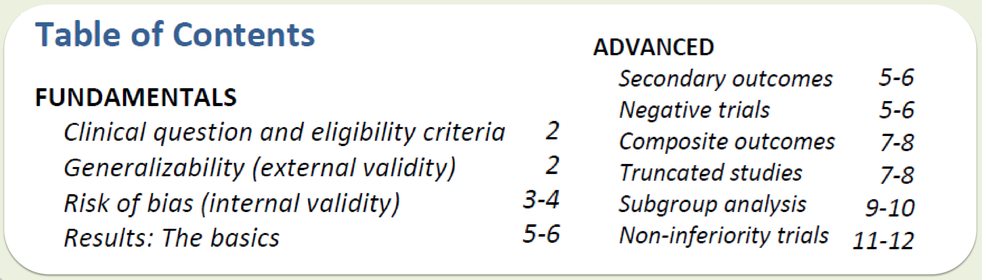
Content

Informative but content dense (*22 pages*)

Expanded for novice and advance users (*138 pages*)

Navigation

Traditional table of contents



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ADVANCED

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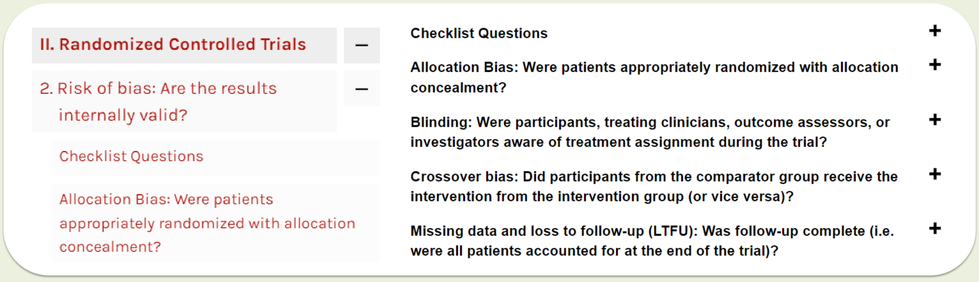
Clickable table of contents, sections, and subsections



II. Randomized Controlled Trials –

2. Risk of bias: Are the results internally valid? –

Checklist Questions

Allocation Bias: Were patients appropriately randomized with allocation concealment?

Checklist Questions +

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Blinding: Were participants, treating clinicians, outcome assessors, or investigators aware of treatment assignment during the trial? +

Crossover bias: Did participants from the comparator group receive the intervention from the intervention group (or vice versa)? +

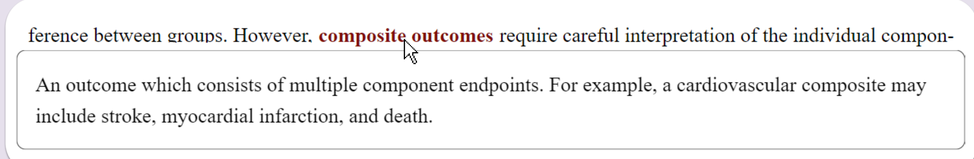
Missing data and loss to follow-up (LTFU): Was follow-up complete (i.e. were all patients accounted for at the end of the trial)? +

Jargon

Assumes background knowledge

Were there important clinical differences between study participants and my patient (i.e. SCRAPP characteristics)?

Click-to-learn

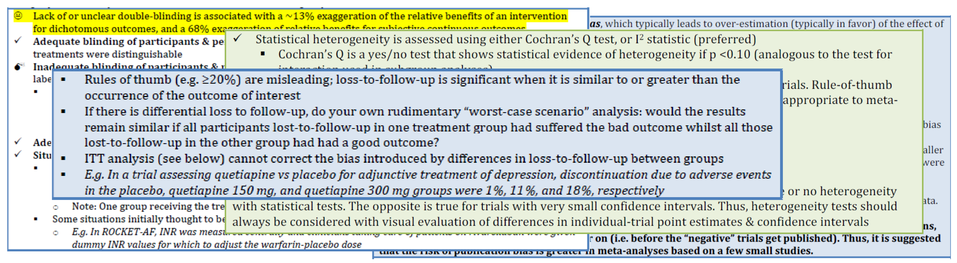


ference between groups. However, **composite outcomes** require careful interpretation of the individual compon-

An outcome which consists of multiple component endpoints. For example, a cardiovascular composite may include stroke, myocardial infarction, and death.

Visual Learning

Walls of text



- Lack of or unclear double-blinding is associated with a ~13% exaggeration of the relative benefits of an intervention for dichotomous outcomes, and a 68% exaggeration for subjective continuous outcomes
- Adequate blinding of participants & personnel
- Inadequate blinding of participants & personnel

as, which typically leads to over-estimation (typically in favor) of the effect of

- Statistical heterogeneity is assessed using either Cochran's Q test, or I^2 statistic (preferred)
  - Cochran's Q is a yes/no test that shows statistical evidence of heterogeneity if p <0.10 (analogous to the test for

rials. Rule-of-thumb appropriate to meta-

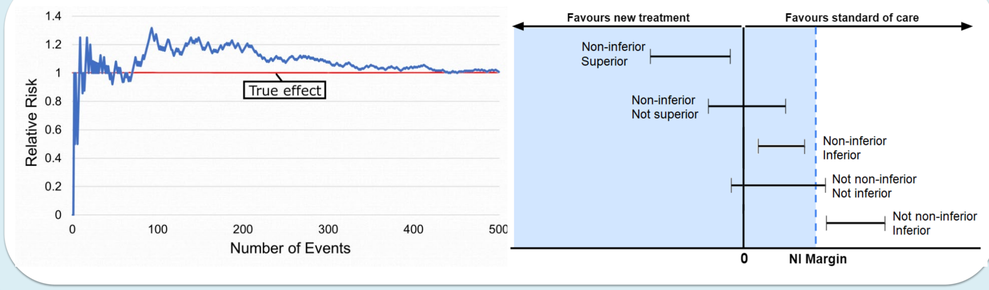
- Rules of thumb (e.g. ≥20%) are misleading; loss-to-follow-up is significant when it is similar to or greater than the occurrence of the outcome of interest
- If there is differential loss to follow-up, do your own rudimentary "worst-case scenario" analysis: would the results remain similar if all participants lost-to-follow-up in one treatment group had suffered the bad outcome whilst all those lost-to-follow-up in the other group had had a good outcome?
- ITT analysis (see below) cannot correct the bias introduced by differences in loss-to-follow-up between groups
- *E.g. In a trial assessing quetiapine vs placebo for adjunctive treatment of depression, discontinuation due to adverse events in the placebo, quetiapine 150 mg, and quetiapine 300 mg groups were 1%, 11%, and 18%, respectively*

or no heterogeneity with statistical tests. The opposite is true for trials with very small confidence intervals. Thus, heterogeneity tests should always be considered with visual evaluation of differences in individual-trial point estimates & confidence intervals

- Note: One group receiving the tre
- Some situations initially thought to be
  - *E.g. In ROCKET-AF, INR was measured*
  - *dummy INR values for which to adjust the warfarin-placebo dose*

on (i.e. before the "negative" trials get published). Thus, it is suggested that the risk of publication bias is greater in meta-analyses based on a few small studies.

Easy to Understand Visual Aids



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