

Non-statistical synthesis of quantitative data

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*(we need to talk about narrative
synthesis)*

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Non-statistical synthesis: Cinderella of systematic reviews



What is it?

- Confusion and little guidance on terminology (narrative, qualitative, non-statistical...)
- Near absence of guidance or discussion of conduct
- Is it a method?

Narrative synthesis terminology

- Generic term
- Distinction from “Narrative review”: often used to describe non-systematic “traditional” review
- Many other terms used to describe review approaches
 - E.g. Critical interpretive synthesis, Framework synthesis, Meta-ethnography, Realist synthesis, Qualitative synthesis
 - Many of these use narrative synthesis
- Qualitative review OR review of qualitative data?
 - Qualitative review sometimes used to refer to narrative synthesis of quantitative data
 - Synthesis of qualitative data inevitably uses narrative synthesis

Focus in this session is use of narrative synthesis for **quantitative** data

Narrative synthesis of **quantitative data**: what is it?

- **Statistical synthesis (meta-analysis):** Combining/pooling standardised effect sizes across studies to get an overall effect size
- **Narrative synthesis:**
 - **textually describing** the overall effect noting variations in study characteristics, implementation etc.
 - Synthesis involves bringing data together at some level- **more** than simply summarising one study at a time
- Used when high levels of heterogeneity contra-indicate meta-analysis
 - Not just when statistical heterogeneity- other possible sources: study design, conceptual (intervention, outcome, context, population)

Working definition of narrative synthesis

- **Narrative synthesis**

"synthesis of findings from multiple studies that relies primarily on the use of words and text to summarise and explain the findings of the synthesis. Whilst it can involve the manipulation of statistical data, the defining characteristic is that it adopts a textual approach to the process of synthesis to 'tell the story' of the findings from the included studies."

ESRC guidance on narrative synthesis: 2006

Role & value of narrative synthesis

- Make use of best available evidence
 - avoids concluding that we know nothing about a topic just because there are no trials
- Able to incorporate heterogeneity:
 - Provides rich descriptions about mediating factors such as context etc
 - Identification of similarities & differences across studies-*configurative approach*
 - Identification of commonality within heterogeneity is valuable to develop & refine theories of interventions
 - What works for who, in what circumstance

Narrative synthesis: purpose

- **Meta-analysis:** Estimate of overall effect size- how big?
- **Narrative synthesis:** *"Purpose of narrative synthesis is the organisation, description, exploration, and interpretation of study findings and the attempt to find explanations for (and moderators of) those findings."*
Pope, Mays, Popay 2007. *Synthesizing qualitative and quantitative health evidence* (p104).
 - Limited with respect to effectiveness
 - Review of nature & direction of effect
 - Identify patterns & explanations for variation in effects
 - Developments to help meta-analysis do this too

Approaches to reviews

- **Aggregative**

- Synthesis of similar data to test hypothesis
- Deductive
- Likened to adding stones to build a cairn



- **Configurative**

- Synthesis of data with some level of commonality but incorporates high level of variation- used to generate hypothesis
- Inductive
- Likened to mosaic- contrasts create image
- Not merely grouping similar fragments



- **Most reviews will involve a mix of approaches (especially of complex interventions)**

Matching the method to the data



Current use of narrative synthesis in Cochrane reviews

- Using all Cochrane reviews published April 2016-April 2017 **n=714** (excluding empty/methods/DTA reviews)
 - 49% (347) **only** meta-analysis
 - **16% (113)** **only** narrative/text
 - 36% (254) mix of meta-analysis & narrative
 - Over half Cochrane reviews using narrative “method”: across most review groups
 - May increase with move to incorporate more diverse sources of data
 - How is it implemented?

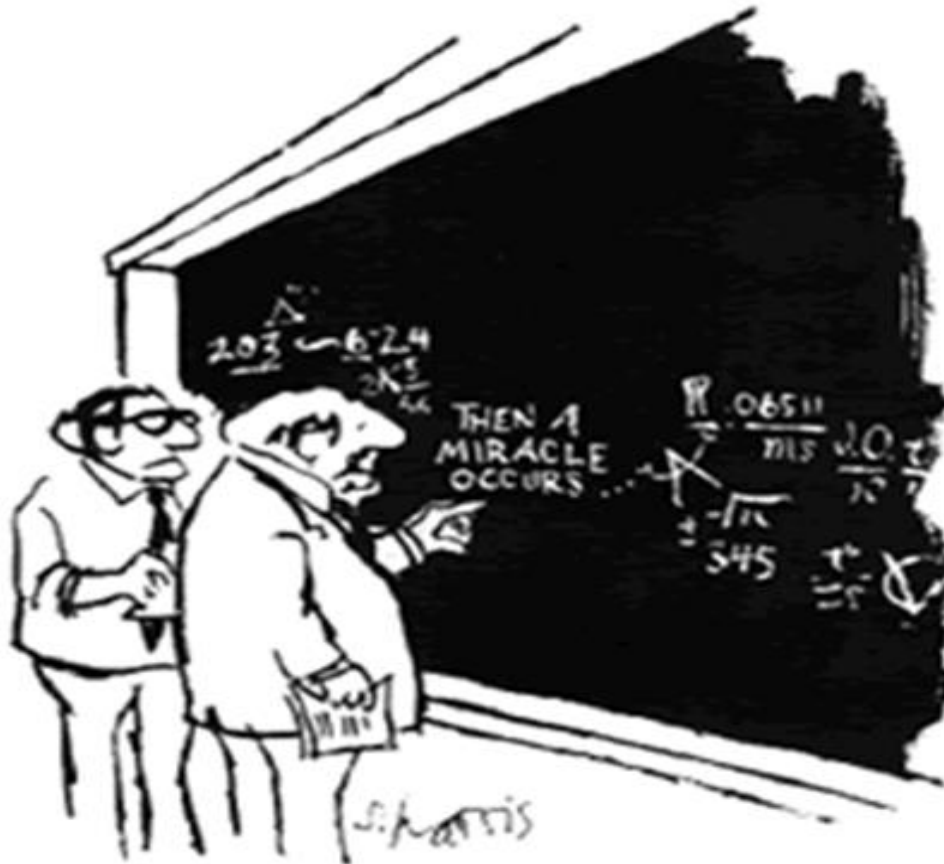
Adequacy of narrative synthesis in Cochrane reviews

- 113 review using narrative/text only
 - 63 **did not** synthesise data- only 1 study in any comparison/outcome
 - 50 did perform synthesis
 - Broad definition of narrative synthesis n=50 reviews
 - Criteria: >1 study included for any single outcome/comparison
- OR
- indication of textual synthesis/overarching conclusion drawing on more than one study for any single primary outcome in results/discussion/abstract

Reporting of narrative methods in Cochrane reviews (n=50)

- Stated used narrative synthesis (NS) 53%
- Reported methods of NS 18%
- Referred to NS guidance 10%
- Clear links between data & narrative 30%

The problem with narrative synthesis



"I think you should be more explicit in Stage 2..."

Narrative synthesis in Cochrane

- *"Narrative syntheses are, however, problematic, because it is difficult to set out or describe results without being selective or emphasizing some findings over others. Ideally, authors should set out in the review protocol how they plan to use narrative synthesis to report the findings of primary studies."*

Cochrane Handbook

Promoting transparency in narrative synthesis

- Describe methods
 - Groupings and comparisons used in synthesis- with justification & changes since protocol
 - Use of a common metric to synthesise data- e.g. p values; effect direction
- Transparent links between narrative synthesis and included data
 - Present key study characteristics and data graphically or in tables which reflect groupings in the synthesis
- Summary text which brings included data together
 - More than simply presenting data of single studies
 - Clear about selection/prioritisation of data to draw conclusions
 - Incorporate certainty of included evidence

Resources for narrative synthesis

- **ESRC guidance:** Popay, J., et al. (2006). Guidance on the conduct of narrative synthesis in systematic reviews: a product of the ESRC methods programme (Version I) (available from l.osborn@lancaster.ac.uk)
- **CRSU website:** http://www.nihrcrsu.org/guidance/narrative_synthesis/
- **Forthcoming: reporting guidelines; enhanced guidance; online learning resources**
 - Funded by Cochrane Strategic Methods Fund (Improving Conduct of Narrative Synthesis of Quantitative data: **ICONS-Quant**)
 - <https://www.gla.ac.uk/researchinstitutes/healthwellbeing/research/mrccsocialandpublichealthsciencesunit/programmes/policy/evidencesynthesis/icons-quant/>

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