MISMATCH BETWEEN OVERALL AND PAIRWISE OVERLAP ANALYSIS IN A SAMPLE OF OVERVIEWS
A METHODOLOGICAL REVIEW

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CONFLICT OF INTERESTS

- I have no actual or potential conflict of interest in relation to this presentation.

INTRODUCTION

- Overlap as a key methodological challenge for overviews.

- It can be defined as the multiple counting of one (or more) primary studies in two or more systematic reviews (SRs) within a same overview.

- Not addressing overlap may bias the results toward the direction of the result of the most overlapped primary study.
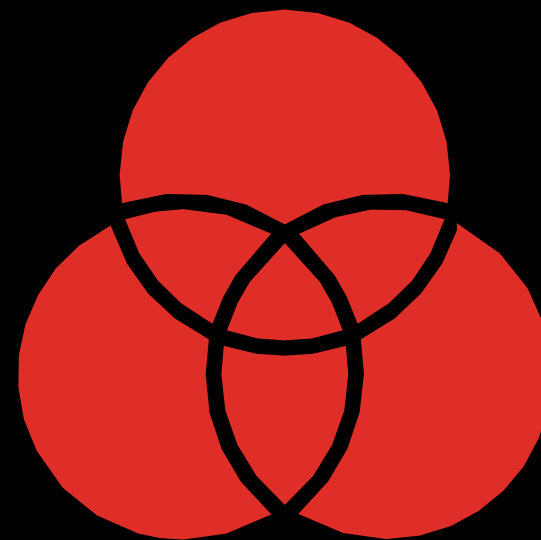
INTRODUCTION

- Calculating the corrected covered area (CCA) starting from a matrix of evidence is amongst the most recommended methods for measuring overlap.
  - Not all authors use this method.

- Conducting a pairwise CCA assessment may be more comprehensive than calculating just an overall CCA.

- Objectives:
  - To describe the approaches for addressing overlap reported by authors of overviews.
  - To assess the degree of overlap, both overall and by pairs of SRs, using the CCA formula.

METHODS

Random sample of overviews:

Published during 2018

Explicit search strategy

Included only SRs

Focused on intervention

15%

Classification of methods for dealing/measuring overlap

Use of decision rule in case of overlap

Visual representation

Quantification of overlap (CCA or other)

Discusses overlap as limitation

Ignores overlap

For all overviews, we conducted a de novo calculation of the CCA using the GROOVE (Graphical Representation of Overlap for OVErviews) tool

We built a matrix of evidence for each overview

We calculated the overall CCA (for the whole matrix)

We calculated the pairwise CCA (for every possible pair of SRs included in each overview)

Thresholds at 5%, 10% and 15%

RESULTS

- Random sample of 30 overviews.
  - 345 SRs, 4851 unique primary studies.

- 11 (36.7%) did not address overlap.

- 11 (36.7%) used a visual representation

- Only 2 (6.7%) used the CCA formula
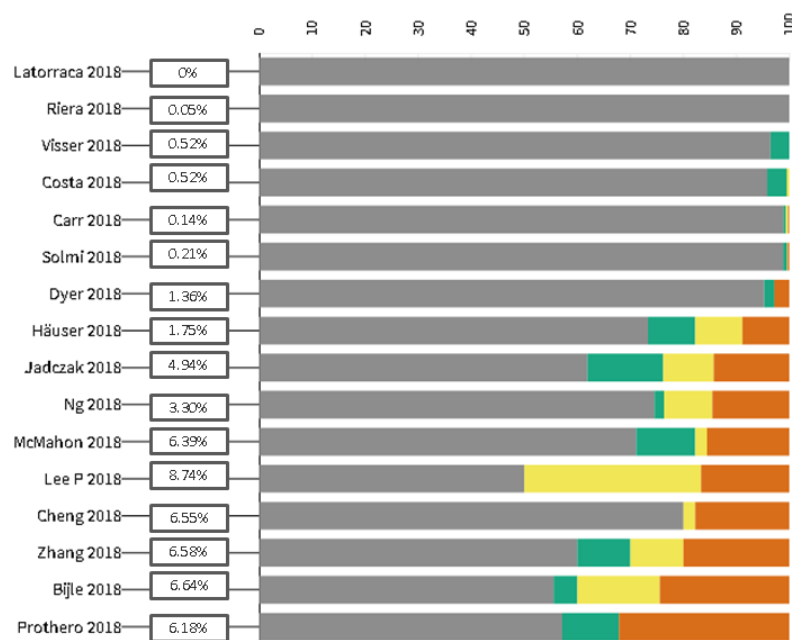
RESULTS

Median overall CCA: 6.7% (moderate)

Table 1. Summary of overall and pairwise CCA for each overview

Study ID	Overall assessment		Total nodes	Pairwise assessment			
	Overall CCA	Interpretation		Nodes with slight overlap (%)	Nodes with moderate overlap (%)	Nodes with high overlap (%)	Nodes with very high overlap (%)
Bijle 2018	6.64%	Moderate	45	25 (55.6%)	2 (4.4%)	7 (15.6%)	11 (24.4%)
Bonovas 2018	17.98%	Very high	45	11 (24.4%)	5 (11.1%)	8 (17.8%)	21 (46.7%)
Carr 2018	0.14%	Slight	435	430 (98.9%)	2 (0.5%)	2 (0.5%)	1 (0.2%)
Chen SY 2018	24.69%	Very high	45	20 (44.4%)	0 (0.0%)	0 (0.0%)	25 (55.6%)
Chen X 2018	15.82%	Very high	28	0 (0.0%)	0 (0.0%)	0 (0.0%)	28 (100%)
Cheng 2018	6.55%	Moderate	45	36 (80.0%)	0 (0.0%)	1 (2.2%)	8 (17.8%)
Churuangsuk 2018	9.53%	Moderate	66	13 (19.7%)	11 (16.7%)	9 (13.6%)	33 (50.0%)
Costa 2018	0.52%	Slight	190	182 (95.8%)	7 (3.7%)	1 (0.5%)	0 (0.0%)
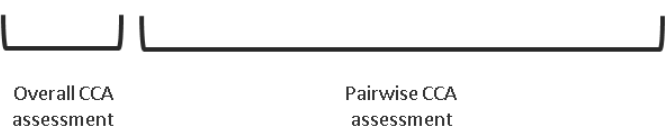
DISCUSSION

- 36.7% of authors are not addressing overlap.
  - Among those who do, visual representation is the most common method, and CCA is still underused

- Other authors report a lack of strategy for handling overlap in significant proportions:
  - Pieper et al: 47% (2009-2011)
  - Bajpai et al: 30% (2015-2017)
  - Lunny et al: 30% (2015-2017)
  - Sachse et al: 78% (until 2021)

DISCUSSION

- Median overlap in this research (6.7%) similar to other reports:
  - Pieper et al: 4.0% (2009-2011)
  - Pollock et al: 3.3% to 14.9% (2010-2016)

- It is possible for an overview with an overall slight or moderate overlap to have a significant proportion of nodes with very high overlap (and vice-versa)

THANK YOU FOR YOUR ATTENTION

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