A qualitative study on the use of GRADE and CINeMA: time-consuming, process transparency and subjectivity versus high-speed, technical challenges and poor understanding

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Conflict of interest

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S. Minozzi, PC Battain, GM Lamiani have no actual or potential conflict of interest in relation to this presentation

C. Del Giovane is a co-author of the publications about CINeMA

Background

Two approaches are available to assess the confidence in NMA results:

- the Grading of Recommendations Assessment, Development and Evaluation (**GRADE**)[1],
- the Confidence in Network Meta-Analysis (**CINeMA**)[2].

Although they share many common aspects, their operationalization differs.

The approaches' concordance, inter-rater reliability among assessors, and application time was compared in a previous study [3], whose preliminary results were presented at the 2024 annual Bias Methods Group meeting

1.Brignardello-Petersen R et al. Advances in the GRADE approach to rate the certainty in estimates from a network meta-analysis. J Clin Epidemiol. 2018 Jan;93:36-44

2.Nikolakopoulou A, et al. (2020) CINeMA: An approach for assessing confidence in the results of a network meta-analysis. PLoS Med 17(4): e1003082.

3. Minozzi S, et al.. Grading of Recommendations Assessment, Development, and Evaluation and Confidence in Network Meta-Analysis showed moderate to substantial concordance in the evaluation of certainty of the evidence. J Clin Epidemiol. 2025 May 5;184:111811

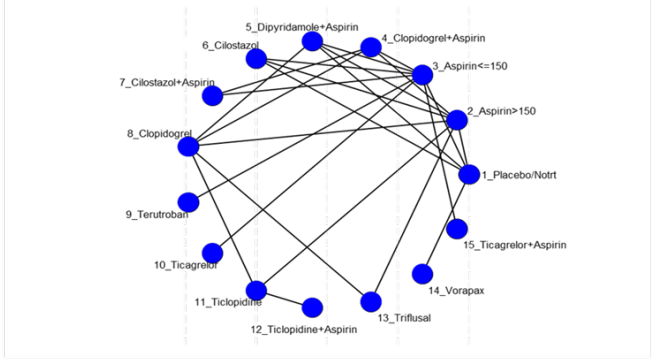
Aims

To collect qualitative feedback on the perceived experience of the assessors who applied the two tools within the previous study

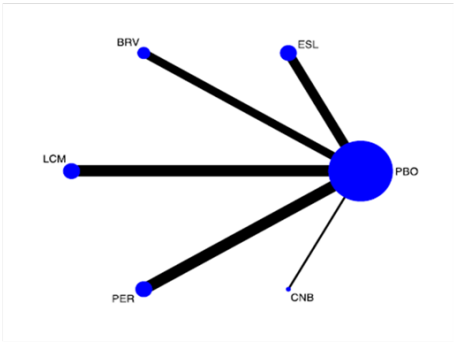
Methods

- Thirteen assessors applied GRADE and CINeMA to four networks of different size and complexity

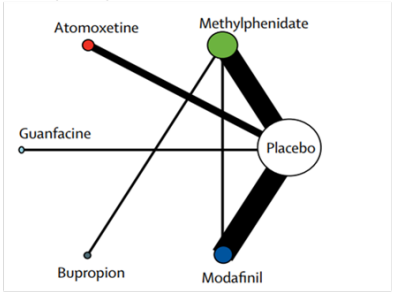
Ischemic stroke (dichotomous)
n=39, treat=15, comp vs placebo=14, ind vs ref=10, loop vs ref=4



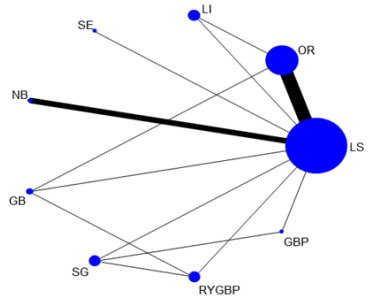
Seizure response (dichotomous)
n=16, treat=6, comp vs placebo=5, ind vs ref=0, loop vs ref=0

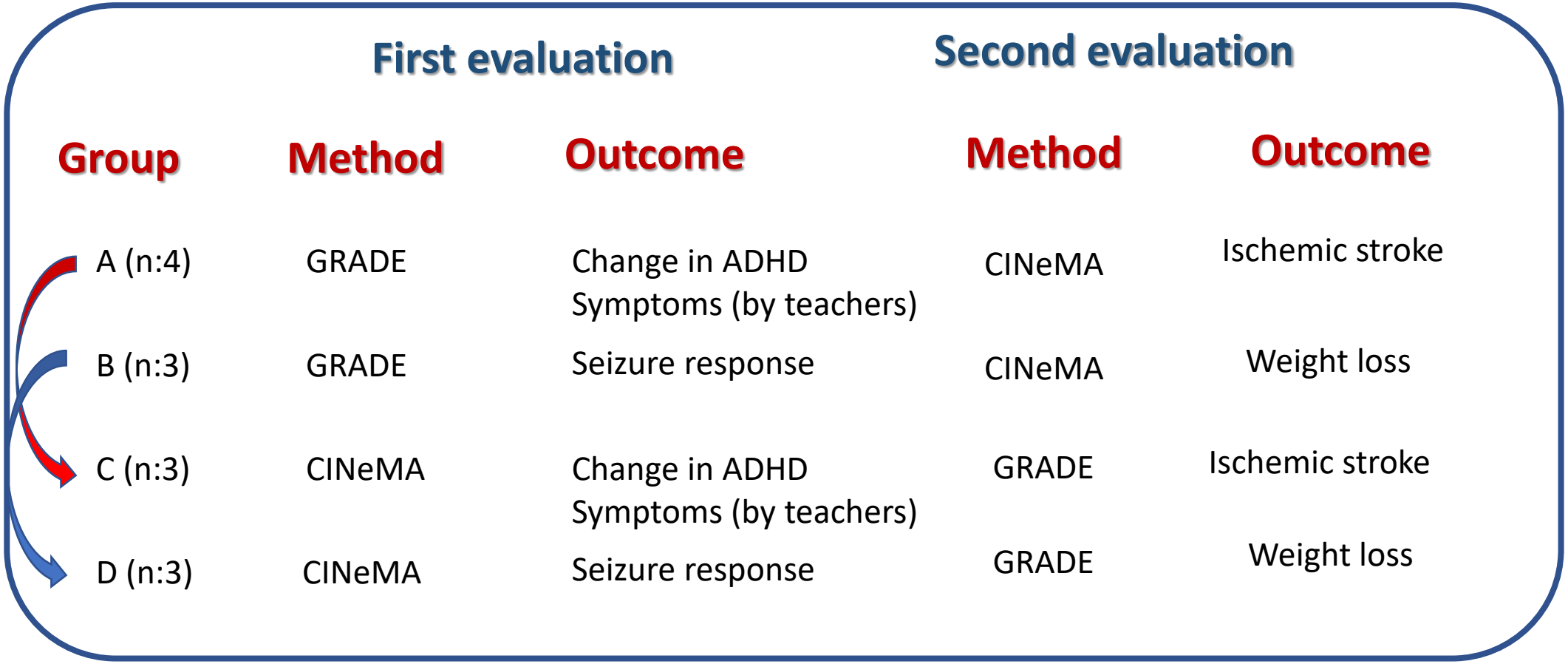


Change mean ADHD symptoms (continuous)
n=16, treat=6, comp vs placebo=5, ind vs ref=1, loop vs ref=1



Weight loss in Kg (continuous)
n=61, treat=9, comp vs LS=8, ind vs ref=0, loop vs ref=5





The assessors, who never applied both approaches but were trained on NMA methodology and such evaluation methods, were randomly assigned to four groups applying first GRADE and then CINeMA or viceversa; each group applied both approaches on one continuous and one dichotomous outcome.

Methods

Assessors' experiences were explored through an **online questionnaire** with :

- closed-ended questions on assessors’ clinical experience, methodological knowledge and previous experience using the instrument
- open-ended questions about:
  - technical and practical challenges encountered when using the instrument,
  - difficulties in understanding theoretical concepts,
  - the need for additional skills to correctly apply the instrument
  - positive and negative aspects of the instrument,
  - their opinion on its usability by clinicians involved in research processes.

The questionnaire ended with a self-assessment of the perceived assessor’s validity and accuracy of the results

Methods

- The assessors completed the questionnaire twice: once at the end of the first phase of outcome assessment using one instrument and once at the end of the second phase of outcome assessment with the other instrument, approximately one month after the first completion.
- Therefore, each assessor reported their feedback for both GRADE and CINeMA approaches.
- All answers were collected and analyzed in Italian and then translated into English during the reporting phase.

Analysis

Structure analysis and framework analysis methods were applied by two researchers to the collected data

Data analysis followed five stages:

1. Familiarization: each researcher read all the responses obtained;
2. Theme identification: each researcher independently identified themes of interest;
3. Contextualization of the themes: the researchers agreed on the themes to assign to each response and in case of disagreement, resolution was found through discussion;
4. Extrapolation of the data: the quotations were divided by themes and organized in tables;
5. Comparison and interpretation: the researchers compared their results and provided a final common interpretation of the data

Results

The qualitative analysis identified 7 main themes:

1. Difficulties related to the instrument: GRADE presented practical difficulties (managing extensive material), CINeMA presented technical challenges (website access, file upload);

2. Need for knowledge: both tools require deep methodological, statistical, and clinical knowledge. A need for specific preliminary training was also reported;

3. Process execution: GRADE offers a greater understanding of methodological steps, CINeMA leads to less understanding of methodological steps;

Results

4. Positive aspects: GRADE excels in transparency and clarity supporting critical reflection, CINeMA is appreciated for its speed of use and usability by assessors with less experience;

5. Interpretative uncertainty: GRADE carries a high risk of subjectivity; CINeMA creates interpretative doubts;

6. Implementation: need of a dedicated software and automatization of specific steps (e.g., inconsistency, imprecision) for GRADE, more in-depth tutorial for CINeMA;

7. Level of confidence: high but subjective with GRADE, linked to understanding the methodology with CINeMA

Strenghts and Limitations

- **Strenghts**
  - Assessment of 4 different networks that enhance the generalizability of our results
  - Evaluators homogeneous about the knowledge and use of the methods
  - The feedback collected reflects real-world experiences of users engaging with both systems, offering a valuable perspective on how methodological frameworks are understood and applied outside of strictly controlled settings
  - possible to explore not only the technical aspects of the tools but also the cognitive processes, uncertainties, and learning needs that emerged during the evaluation.
- **Limitations**
  - Small sample of evaluators: 3/4 evaluators per network
  - although both GRADE and CINeMA were applied to the same outcome, the assessments were carried out by different individuals. This introduces variability that may reflect individual reasoning styles rather than differences inherent to the tools themselves

Conclusions

- GRADE was considered slow and time-consuming, but it excelled in transparency and clarity.
- CINeMA was considered quick to use but had significant technical difficulties and a lack of understanding of the process's steps.
- Specific training courses for effective use were suggested for both tools.
- Adequate methodological preparation is essential for a good understanding of the evaluation process.
- Future studies involving assessors with different experience and knowledge may provide further insights