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The effectiveness of evidence-based practice educational interventions measured with the EBP Beliefs Scale and the EBP Implementation Scale.

A systematic review and meta-analysis

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Background: Rationale

- Previous reviews of evidence-based practice (EBP) educational interventions used a wide range of outcome measures[1]
- Few previous reviews have undertaken meta-analysis[1]
- Variability in outcome assessment has been identified as an important source of methodological heterogeneity[1,2]
- We therefore focused on studies using two common, validated outcome measures[3,4]
    1. The EBP beliefs scale
    2. The EBP implementation scale

[1] Bala et al., 2021; [2] Choi & Kang, 2025; [3] Melnyk et al., 2008; [4] Landsverk et al., 2023

Background: Outcome measures

EBP-B: Beliefs and self-efficacy [1]

- Measures beliefs about the value of EBP
- Measures confidence in performing EBP activities (self-efficacy)
- 16 items (score range: 16 to 80)

EBP-I: Implementation behaviour [1]

- Measures frequency of EBP-related activities in practice
- 18 items (score range: 0-72)

[1] Melnyk et al., 2008

Aim

To evaluate the effectiveness of EBP educational interventions in studies reporting outcomes measured with the EBP-B and EBP-I.

Methods

Design

- Systematic review and meta-analysis

Eligibility

- Study designs: Randomised controlled trials (RCTs), controlled before-after studies, and before-after studies
- Healthcare professionals and students
- EBP educational interventions
- EBP-B and EBP-I

Search

- MEDLINE, Embase, CINAHL, ERIC, PsycINFO Scopus, SveMed+, Web of Science
- Citation searching and Google Scholar

Analysis

- Random-effects meta-analysis
- Risk of bias assessment: ROB 2, ROBINS-I and NIH Quality Assessment Tool
- GRADE assessment

Results: Updated search and study characteristi

Updated search (April 2026)

- 7,689 records identified
- 3,426 duplicates removed
- 50 studies included

Study characteristics

- RCTs **(n = 4)**
- Controlled before-after studies **(n = 7)**
- Before-after studies **(n = 39)**

Interventions

- Most interventions were multifaceted (72%)
- Comparators included standard education, waiting lists, attention controls, and alternative educational interventions

Results: RCT meta-analysis findings

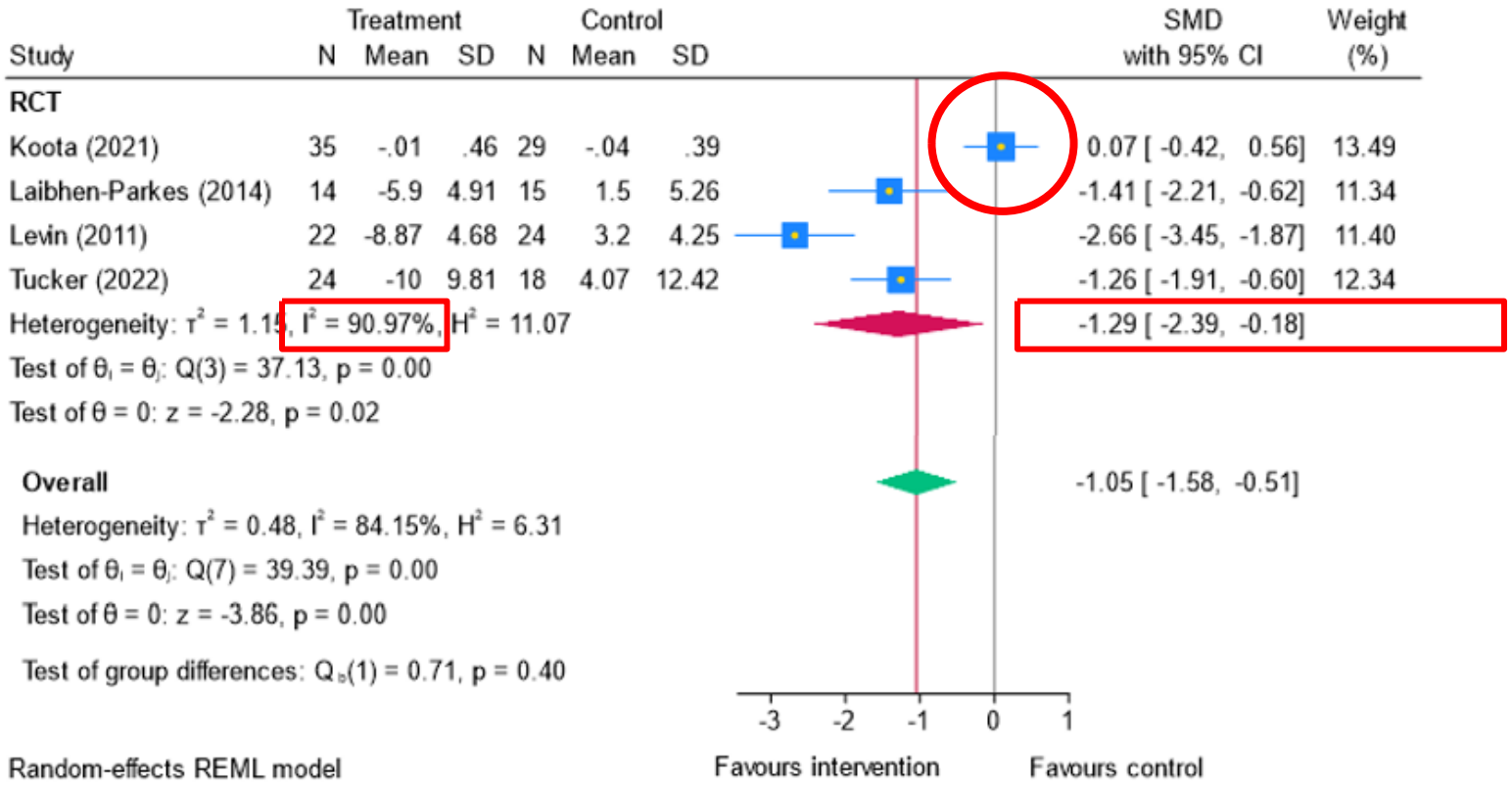
EBP-B (RCTs)

- Improved EBP beliefs
- Pooled effect: SMD = −1.29
- Considerable heterogeneity: I^2 = 91%
- Low-certainty evidence

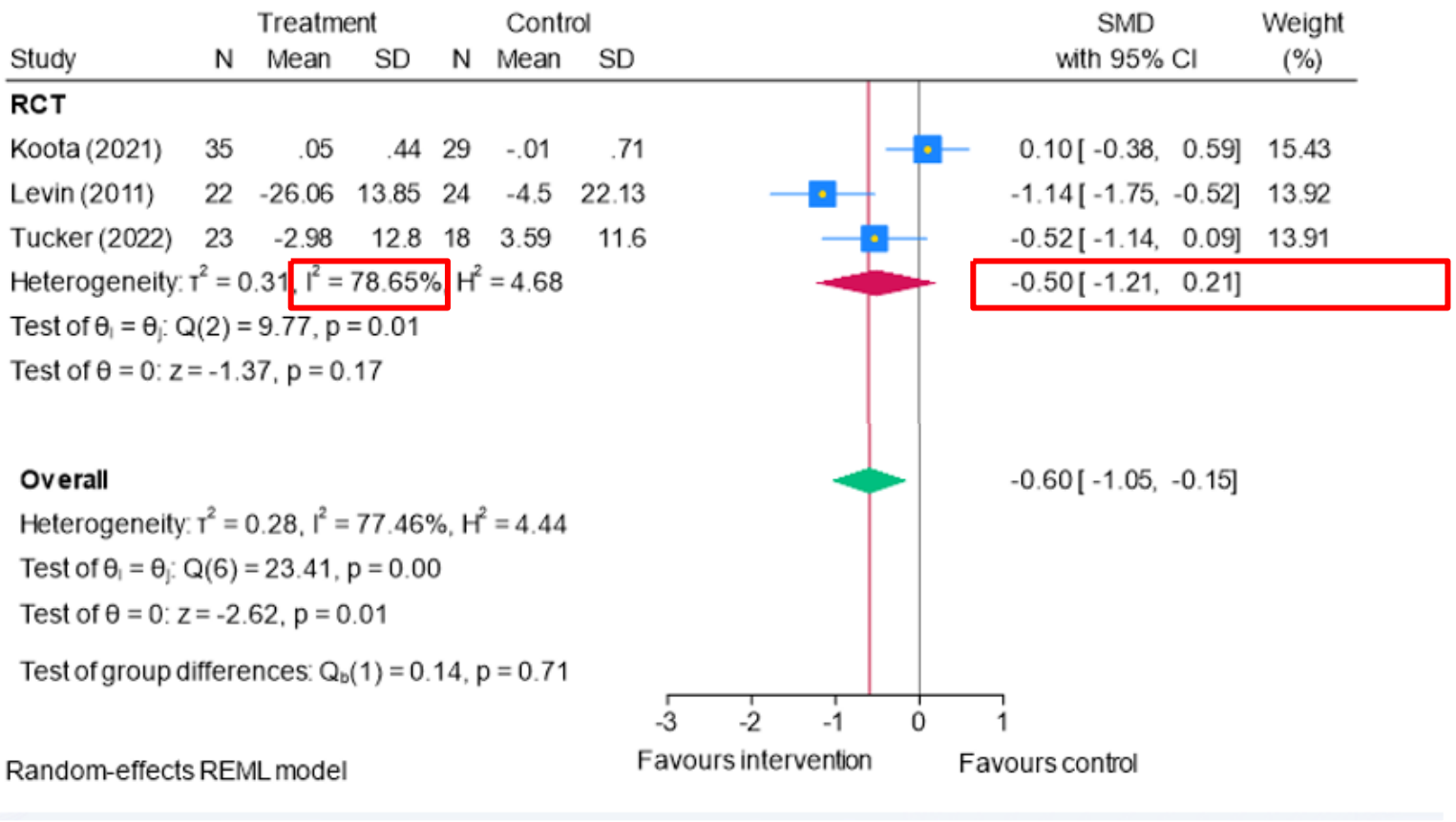
EBP-I (RCTs)

- No statistically significant effect
- Pooled effect: SMD = -0.50
- Considerable heterogeneity: I^2 = 79%
- Low-certainty evidence

Results: Forest plot EBP-B



Results: Forest plot EBP-I



Results: Subgroup analysis

- Multifaceted and single-component interventions showed similar effects
  - EBP-B: p = 0.73
  - EBP-I: p = 0.87

- No significant differences between randomized and non-randomized studies
  - EBP-B: p = 0.40
  - EBP-I: p = 0.73

Limits

- High heterogeneity across pooled analyses
- Wide variation in intervention content and study populations
- Moderate-to-high risk of bias in many included studies

Conclusions

- EBP educational interventions appear more successful in changing beliefs than behaviour
- More complex interventions did not outperform simpler approaches
- Higher-quality studies using validated and consistent outcome measures are needed
- Despite decades of EBP education, the evidence base remains methodologically limited