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CORRESPONDENCE

Do methods in meta-analyses matter?

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Abbreviation

CI Confidence interval

Dear Editor,

Tolppola and coworkers published a systematic review and meta-analysis of pacifier usage in term and preterm newborns [1]. The authors chose a meta-analysis model based on I^2, which depicts a percentage of total variability due to between-study variability, and it depends on the size of studies.

The authors inconsistently stated that I^2 threshold of either 40% or 50% was used for selection of fixed or random-effects model. A crude guide to interpret I^2 in the context of randomized trials is provided while recognized that thresholds can be misleading, since several factors exist like confidence interval (CI) for I^2 [2].

The choice between models should not be based on I^2 or *P*-value for homogeneity as touched in another comment on the authors' systematic review [3]. However, selection of fixed or random-effects model based on I^2 has shown to be frequent [4].

Two "positive" outcomes were observed based on four studies [1]. I^2 was 33% for duration of hospital stay and 42% for time to full oral feeding, thus the authors adopted inverse variance weighted fixed effect model, which assumes one fixed (viz. common) true effect across studies. Nonetheless, 95% CI for I^2 would be 0–76% and 0–81%, thus underscoring uncertainty of I^2 [5].

I reanalyzed the two outcomes with the recommended random-effects model [6]. Average mean difference between restricted and nonrestricted pacifier use in preterm infants was 7.23 (95% CI 0.77 to 13.68) days for hospital stay and 3.21 (95% CI –1.12 to 7.55) days for time to full oral feeding. As expected, CIs became wider with the random-effects model and the latter CI includes 0 for imprecision.

To conclude, sensitivity analyses within meta-analyses are justified since methods matter [7].

Author's contributions JMK is a sole author of this correspondence.

Declarations

Ethics approval Not applicable.

Consent to participate Not applicable.

Consent for publication Not applicable.

Competing interests The author declares no competing interests.

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