

Do Effects of Early Communication Interventions Last? A Meta-analysis

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Disclosures

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- Dr. Kaiser was an author on studies that were reviewed in this work.

Learner Outcomes

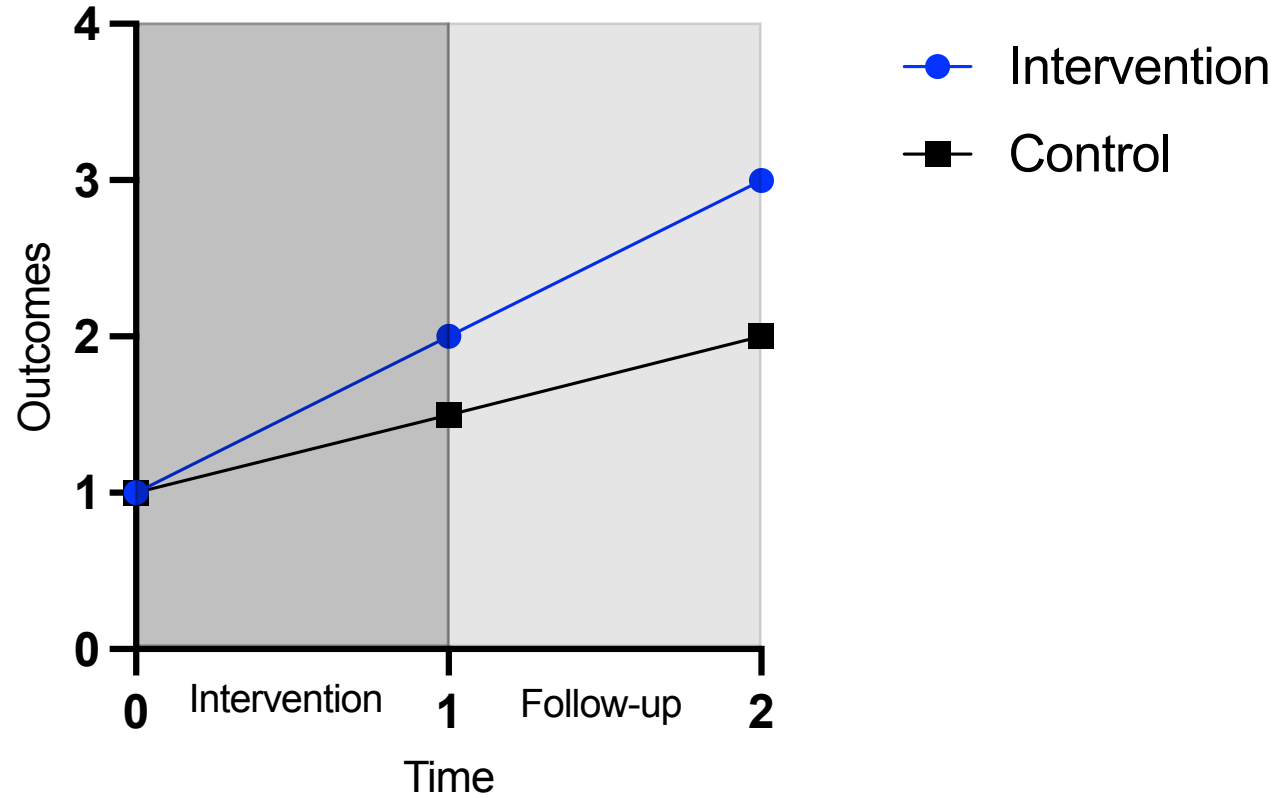
- Understand the phenomenon of fade-out and how it applies to early childhood education and intervention research
- Summarize the research on the long-term effects of early language and communication interventions for children with language impairments
- Relate research findings on long-term effects of early communication interventions to practice

Background and Rationale

Persistence & Fade-out

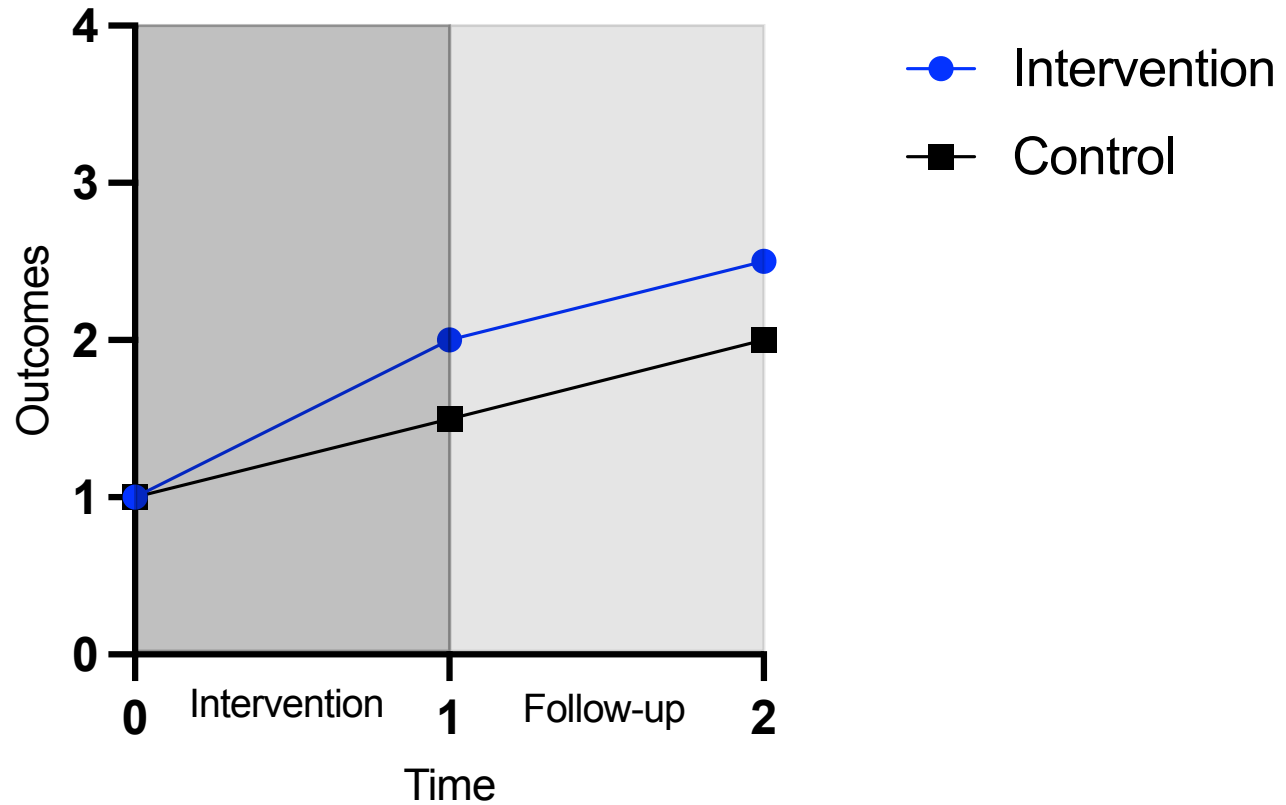
- Fade-out of intervention effects:
 - decrease in effects over time after intervention is removed (Bailey et al., 2017, 2020)

Persistence 1



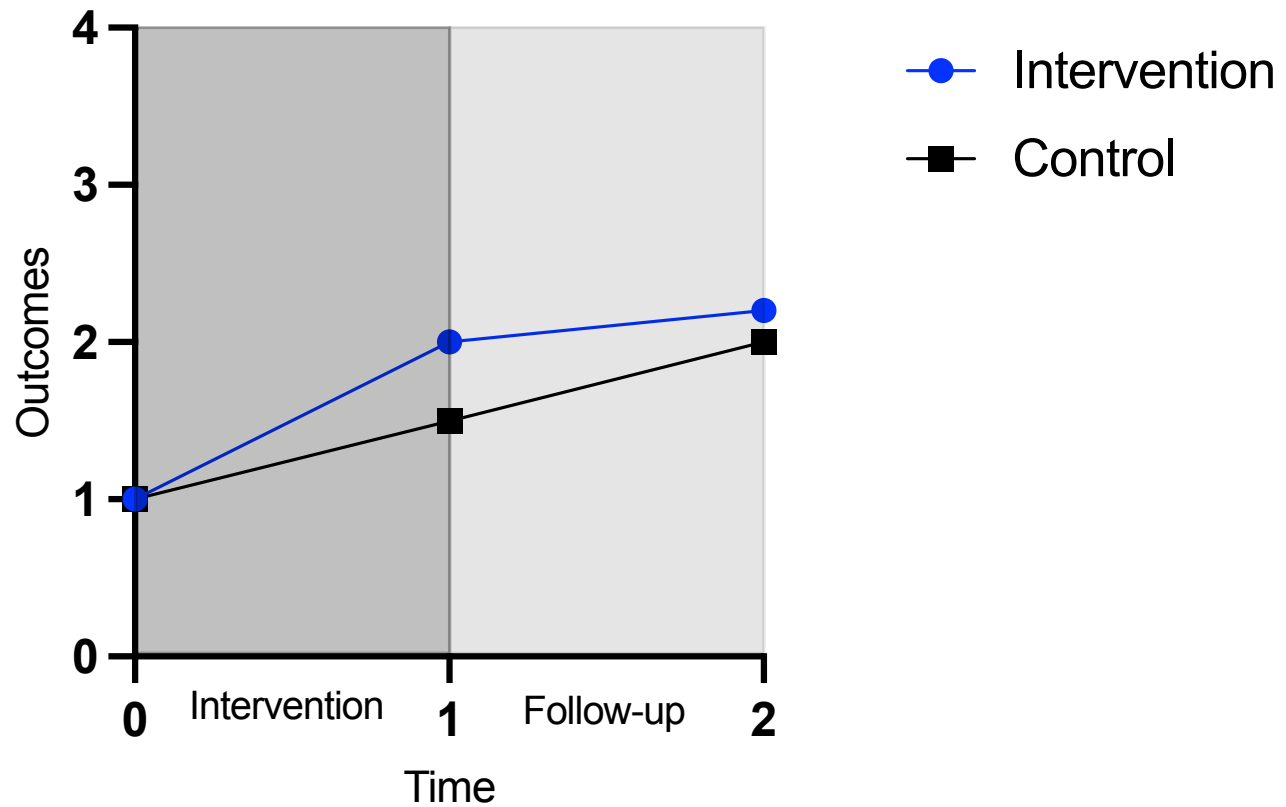
Bailey et al., 2017, 2020

Persistence 2



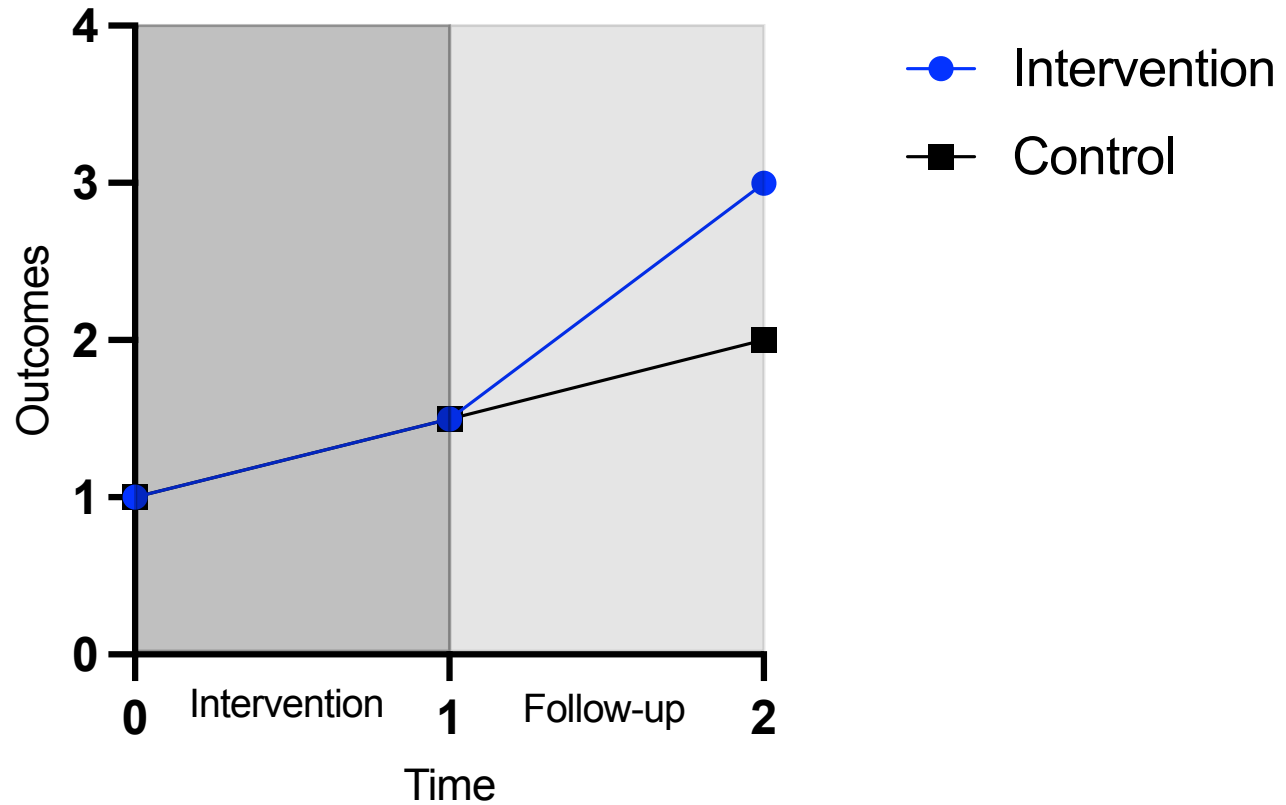
Bailey et al., 2017, 2020

Fade-Out

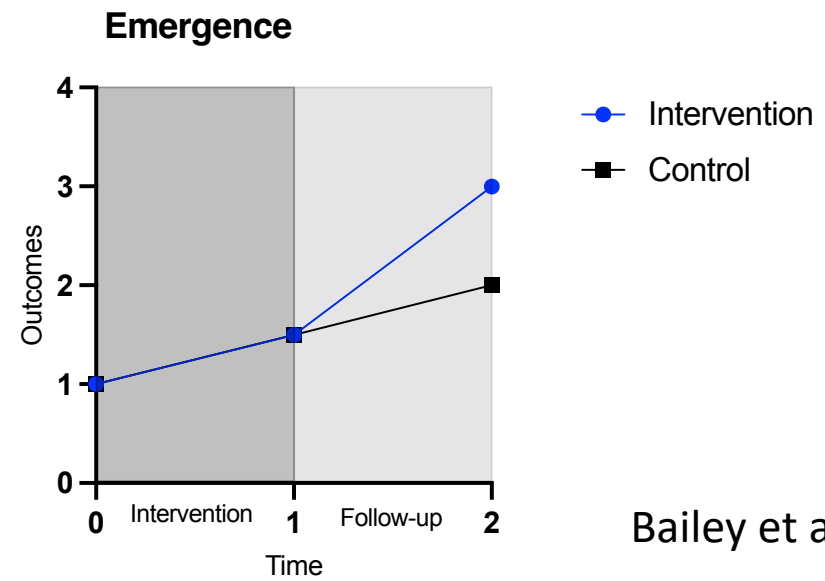
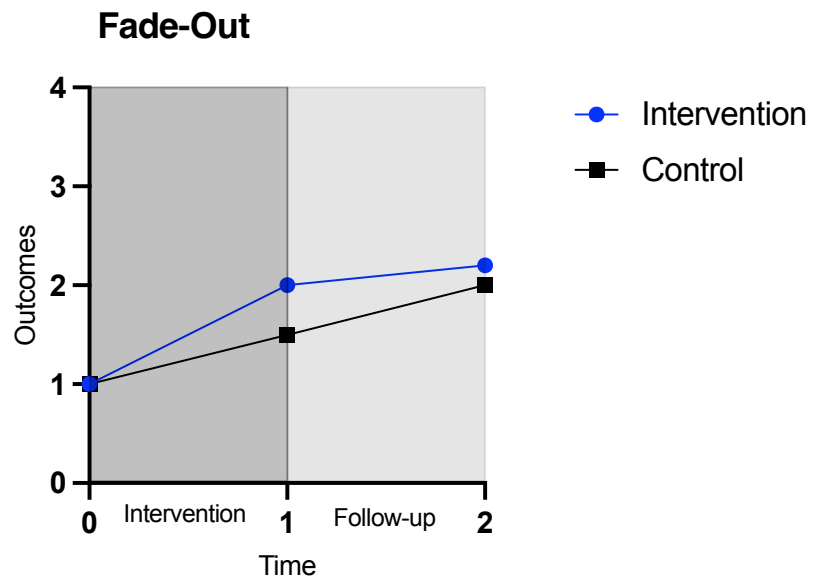
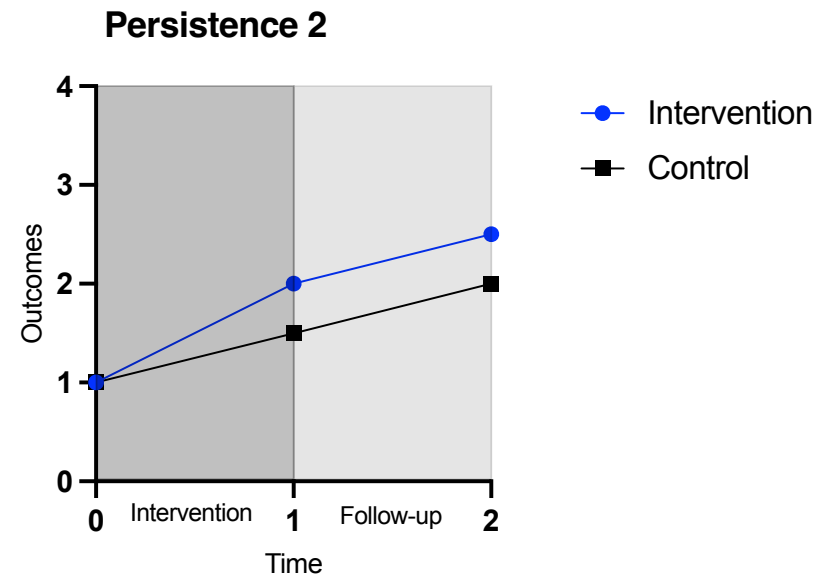
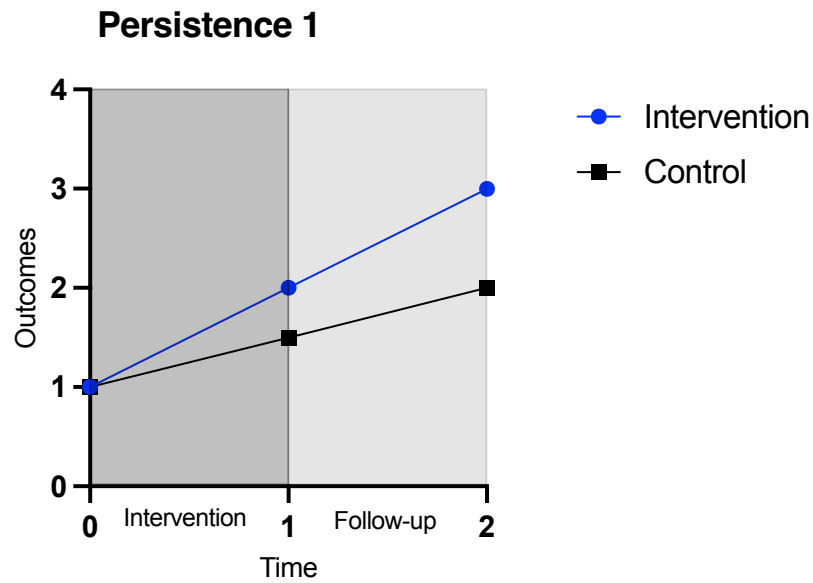


Bailey et al., 2017, 2020

Emergence

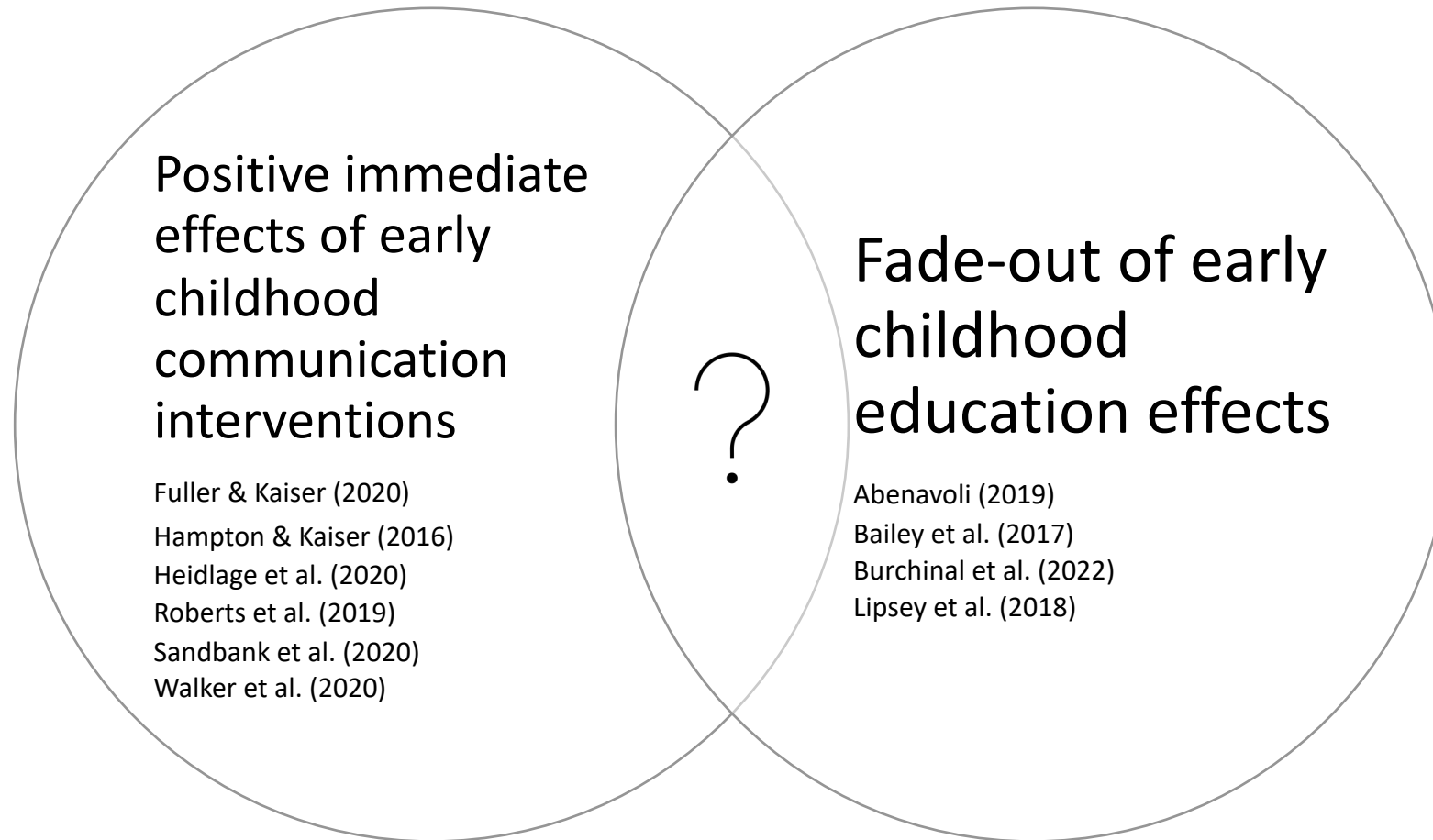


Bailey et al., 2017, 2020



Bailey et al., 2017, 2020

Background and Rationale



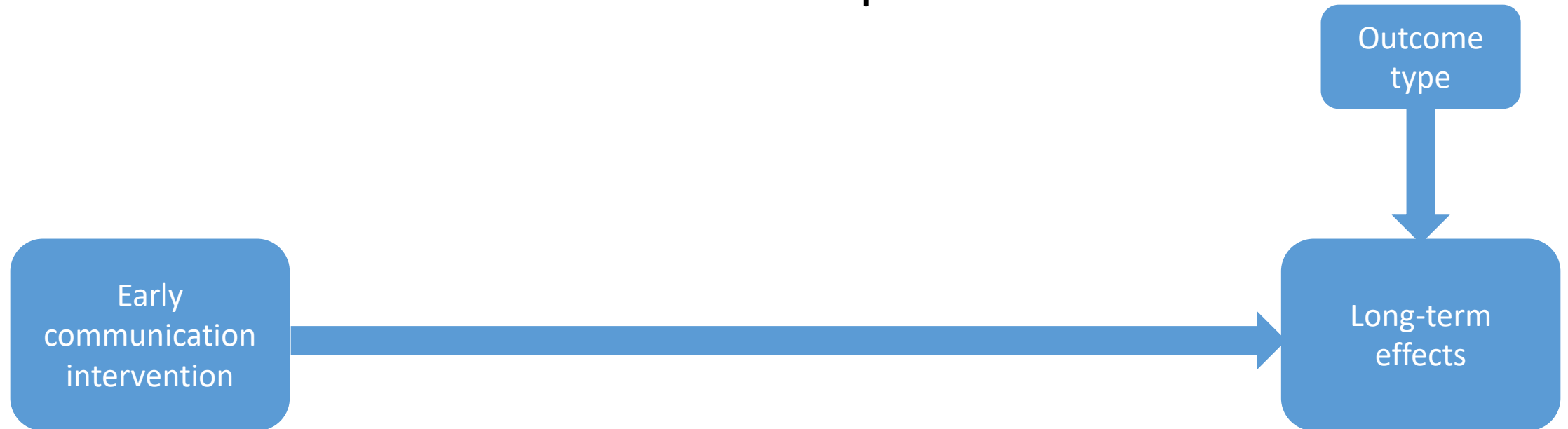
Research Questions

Do effects of early communication interventions persist?



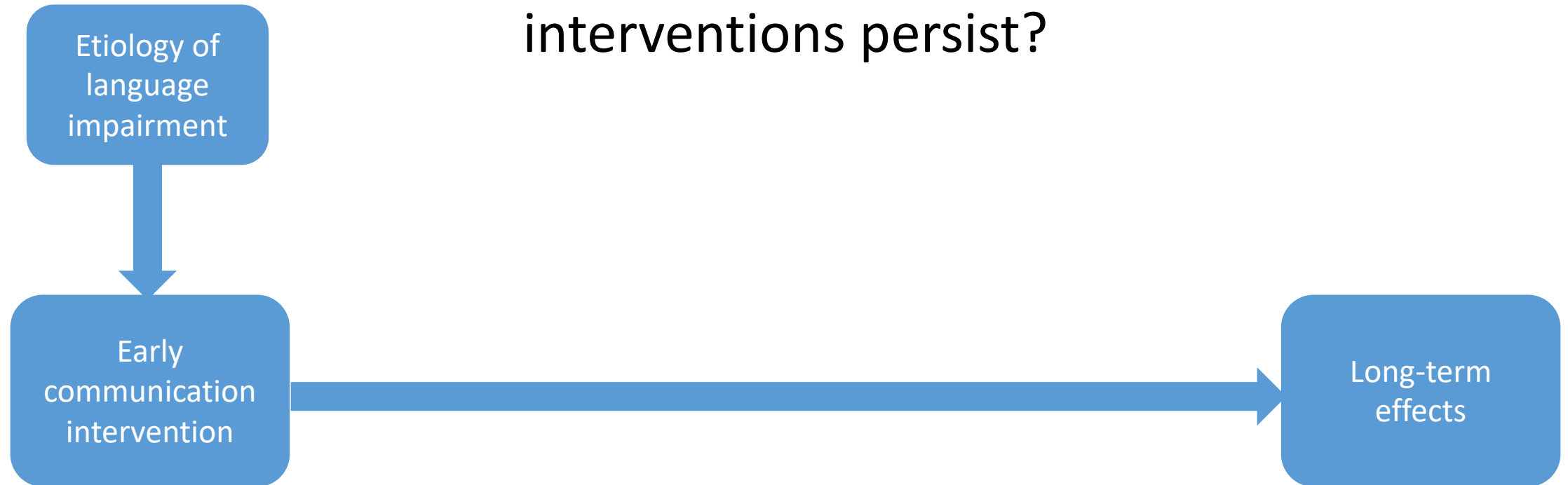
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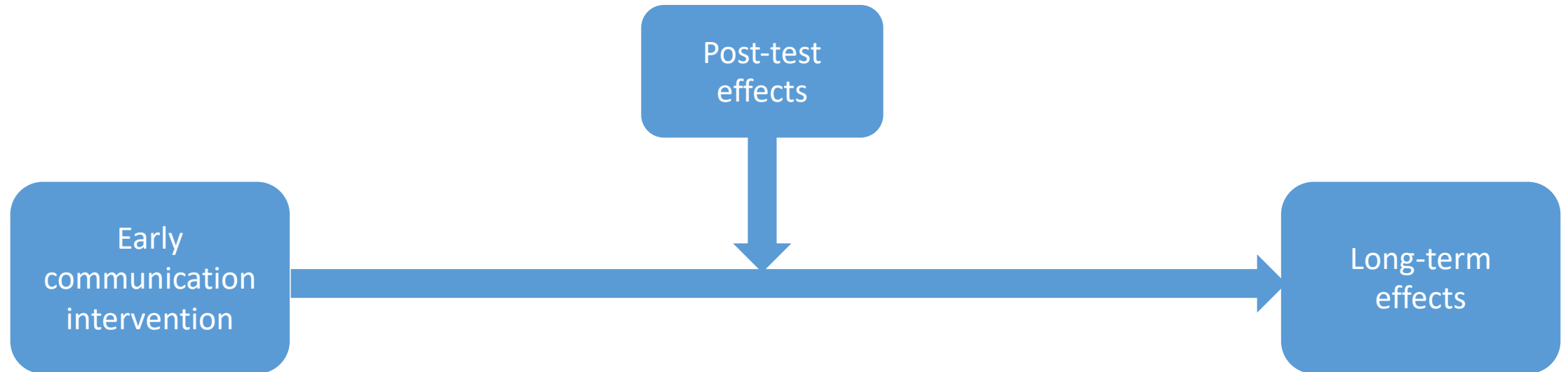
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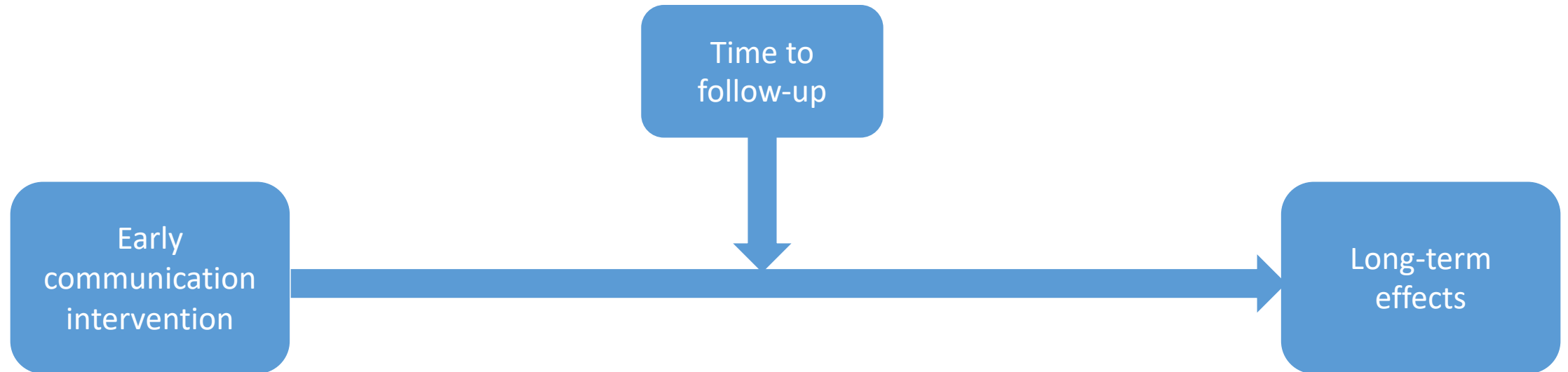
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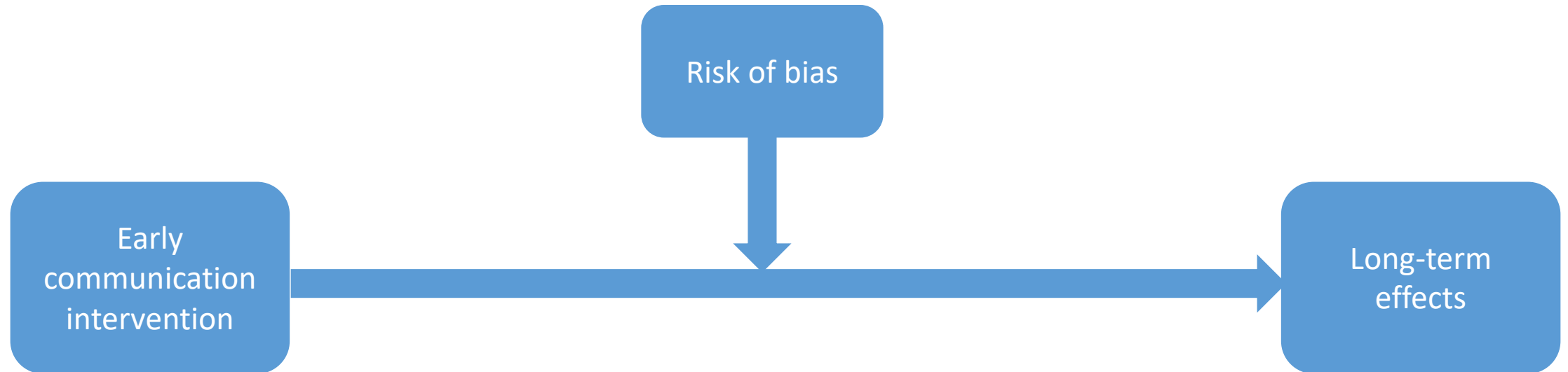
Research Questions

Do effects of early communication interventions persist?

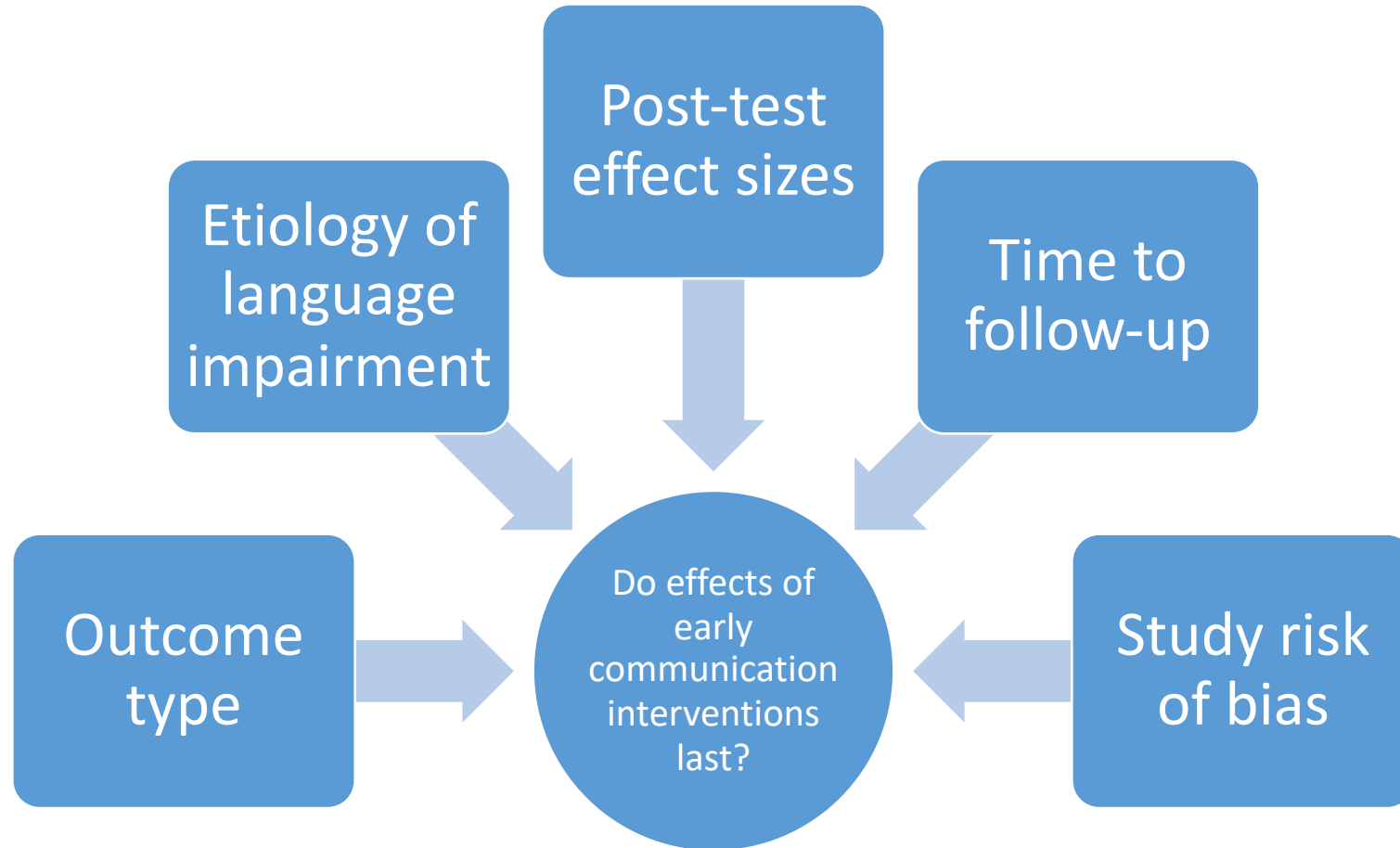


Research Questions

Do effects of early communication interventions persist?



Research Questions



Method

Systematic Review and Meta-Analysis

Method

Systematic search

- Online databases
- Reference lists (previous syntheses, included studies)

Coding

- Design
- Participants
- Experimental and control conditions
- Results

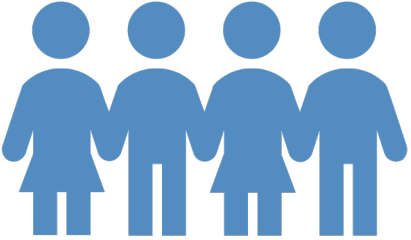
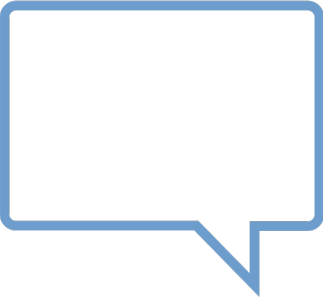
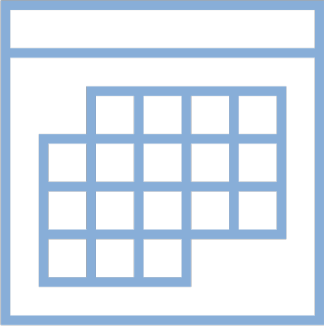
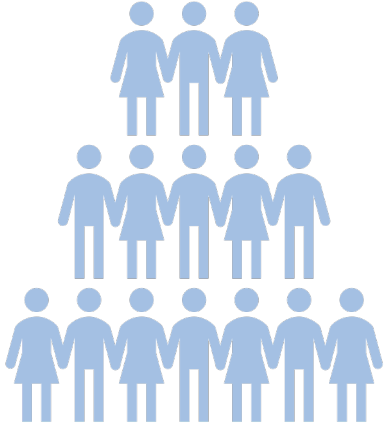
Evaluation of risk of bias

- RoB 2 (Sterne et al., 2019)
- ROBINS-I (Sterne et al., 2016)

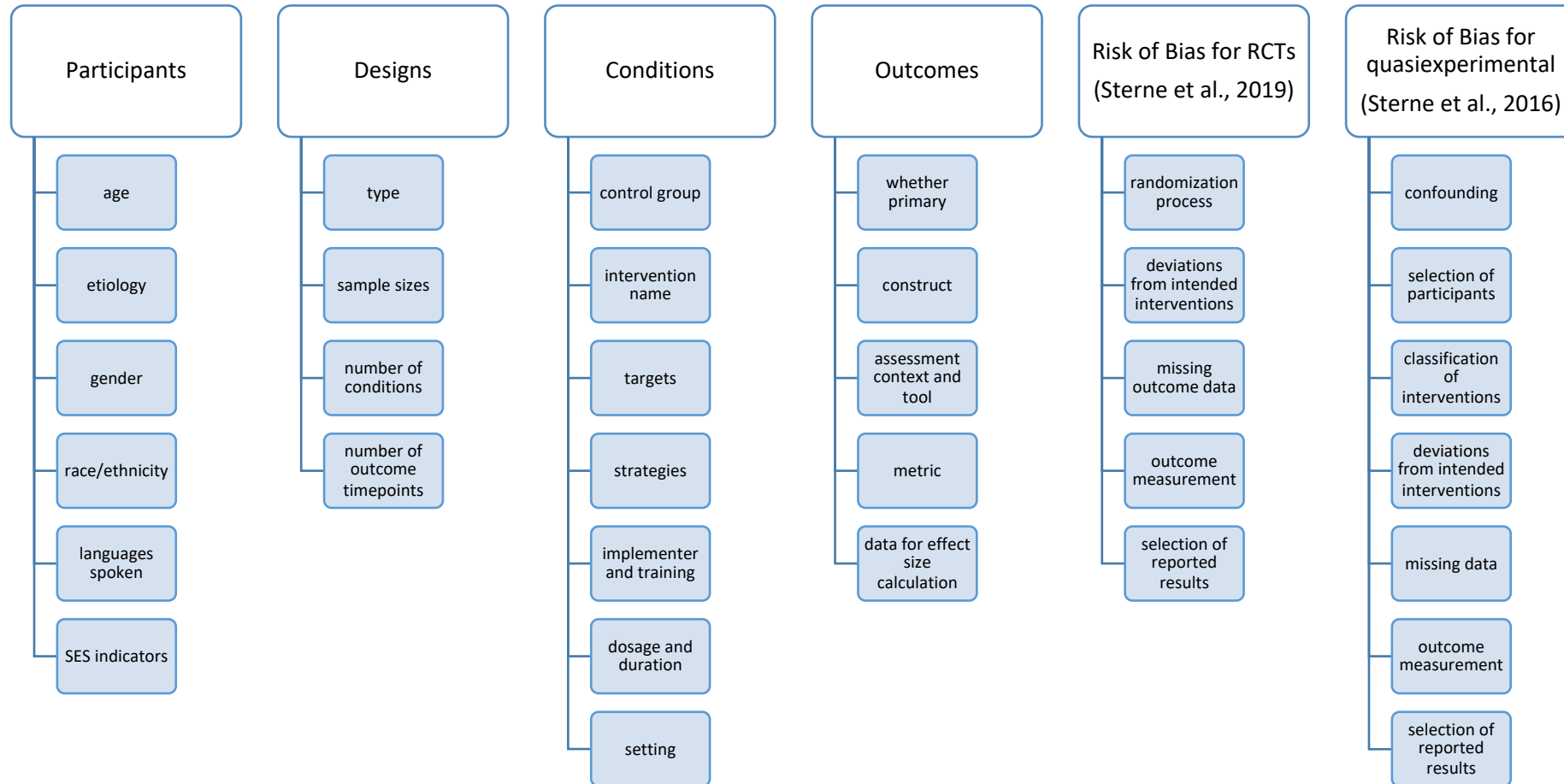
Analyses

- Effect size calculation (g)
- Robust variance estimation
- Funnel plots and sensitivity analyses

Inclusion Criteria

			
0–5-year-old children with language delays or disorders	Language or communication focused interventions	Includes measurement 3 months post-intervention	Group (quasi)experimental design

Coding



Meta-analytic Methods

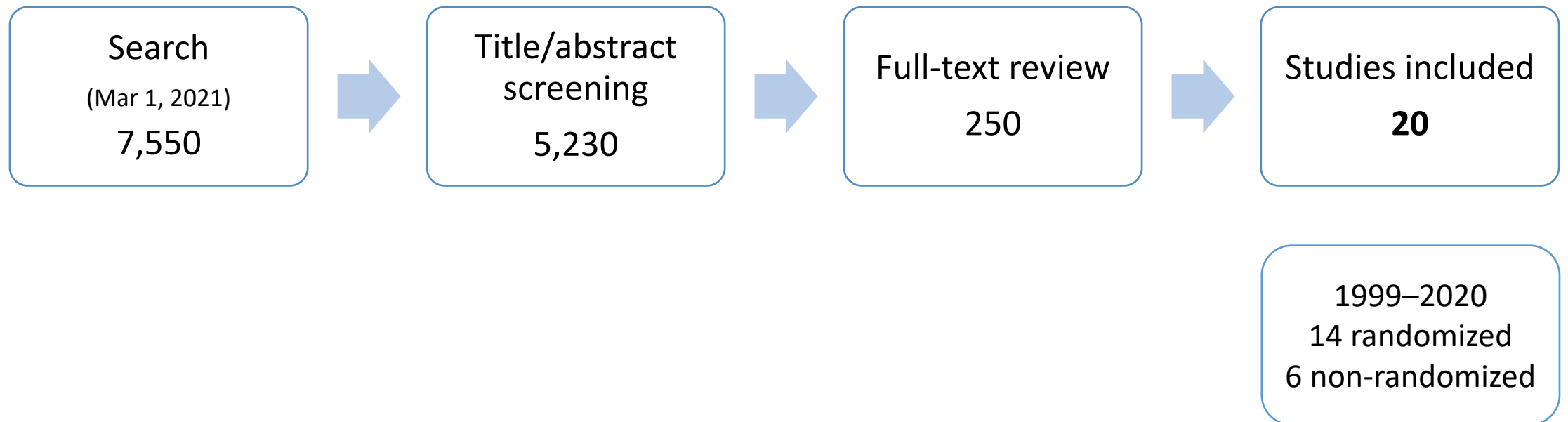
- Calculate effect sizes (g) for long-term outcomes
- Multilevel meta-analysis
 - Studies, effect sizes
- Robust variance estimation (Pustejovsky & Tipton, 2021)

Results

Descriptive

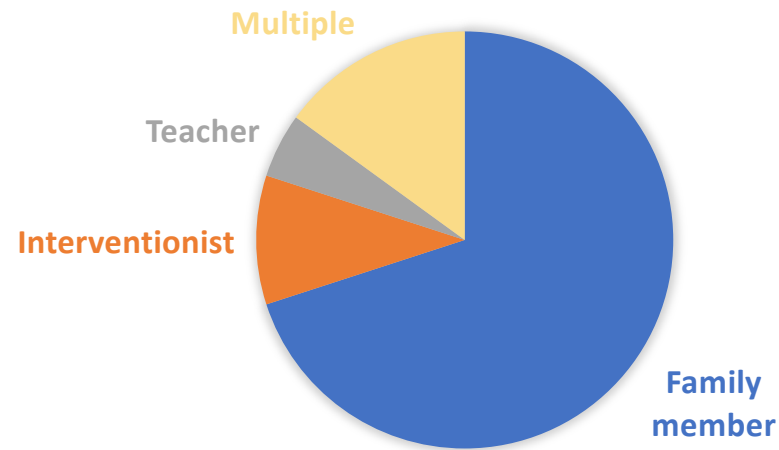
Meta-analytic

Search Results

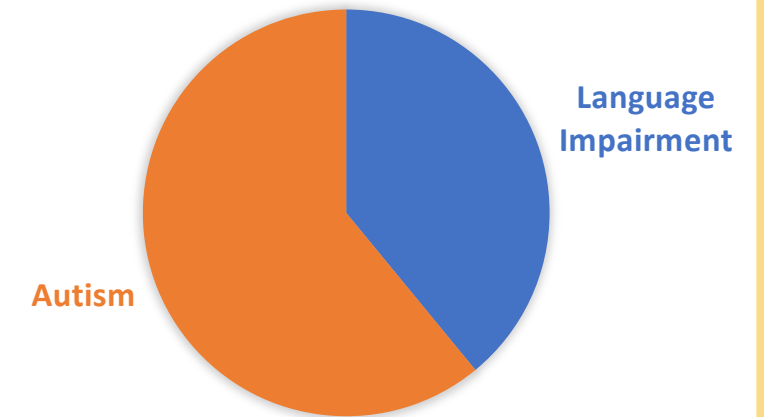


Participants

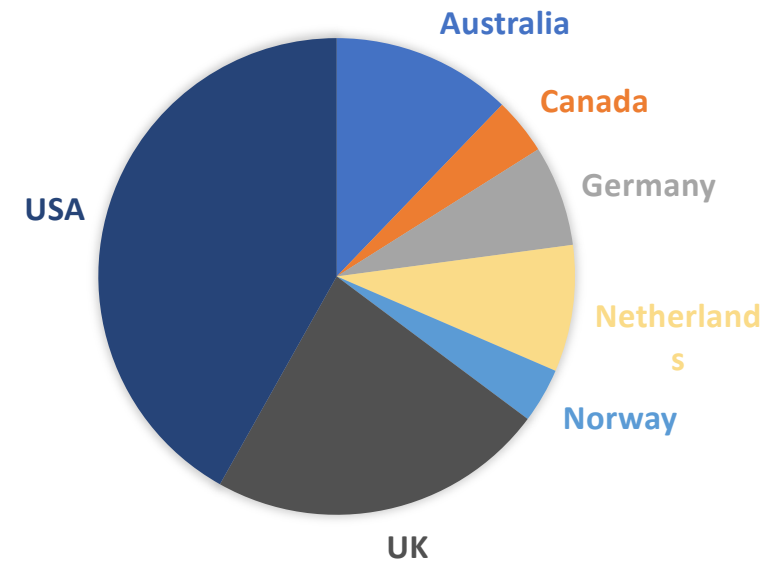
IMPLEMENTER



ETIOLOGY



COUNTRY



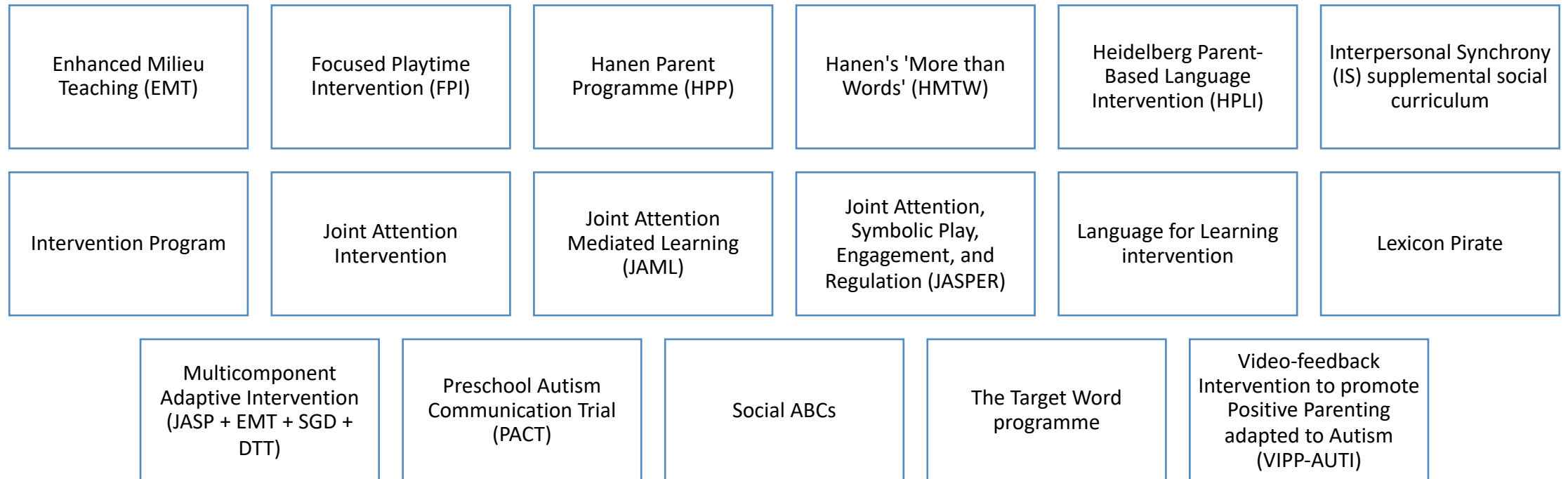
1,639 overall

43–200 per study

Mean age 33.9 months
(range 10.6–58.3)

Interventions

1–13 months duration



Overall Long-Term Effects

Measured on average 10.26
months post-intervention
(*Mdn*=7.00, range=3–71)

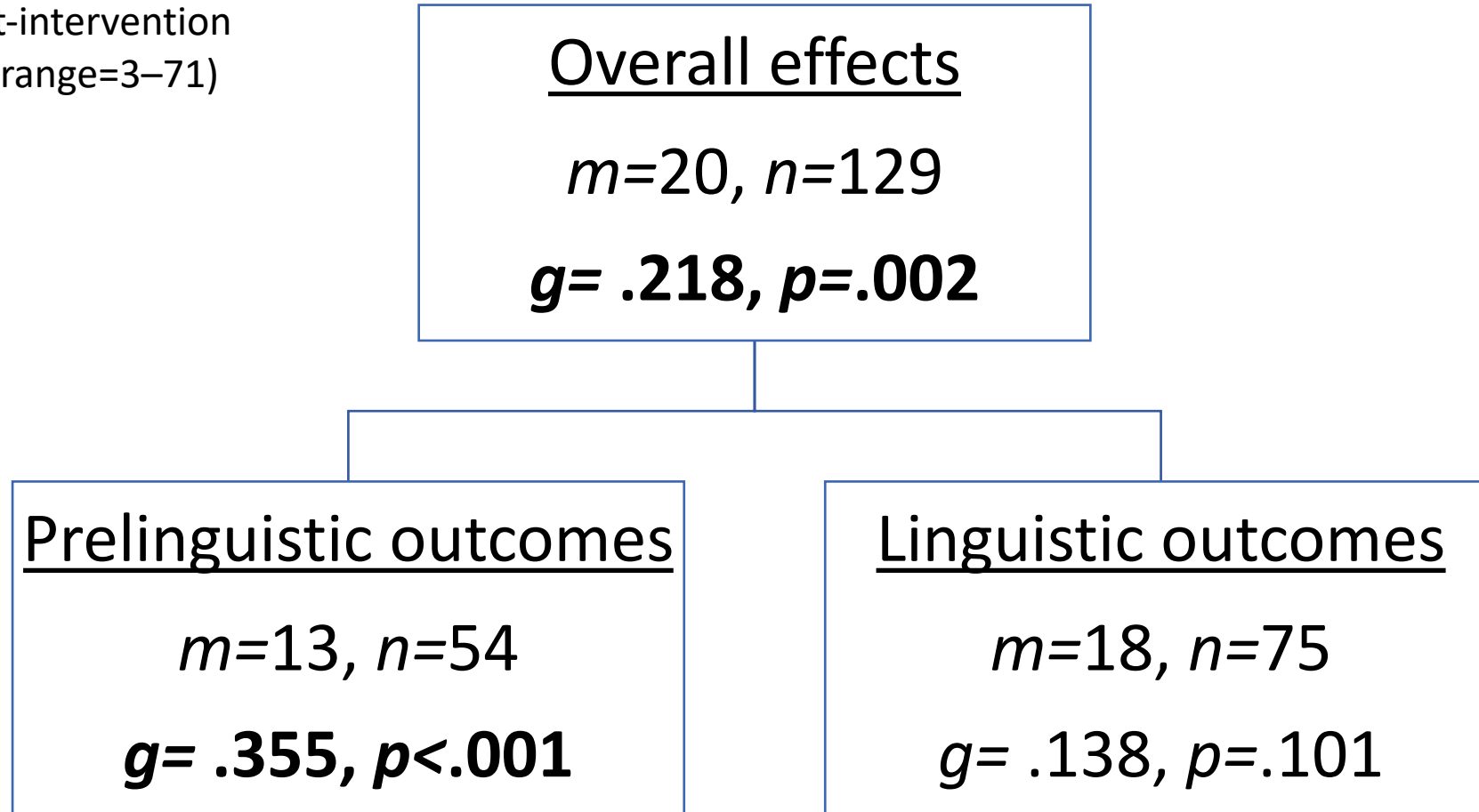
Overall effects

$m=20, n=129$

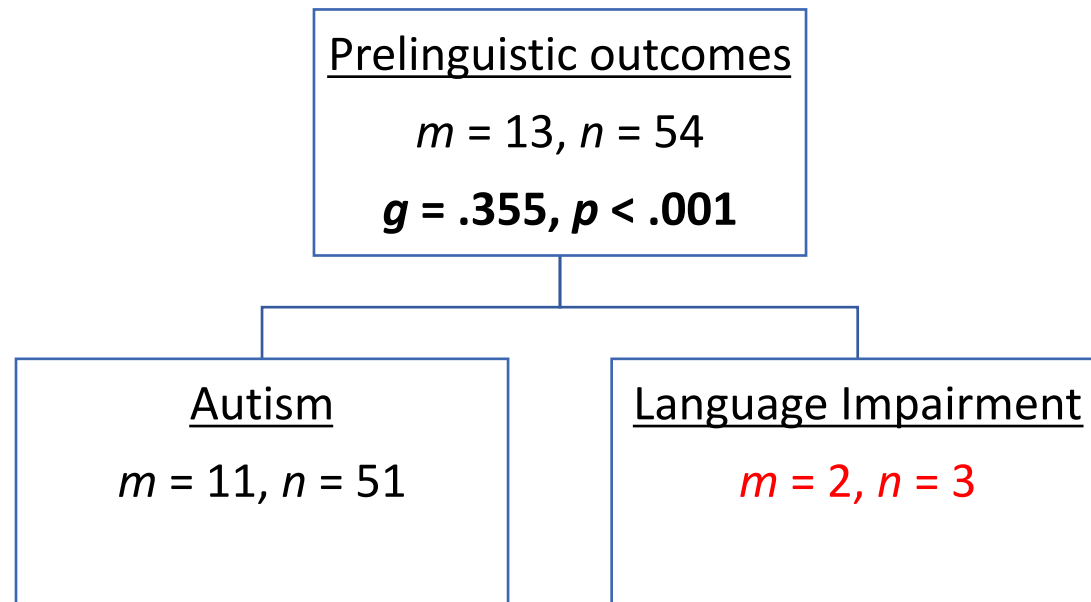
$g= .218, p=.002$

Overall Long-Term Effects

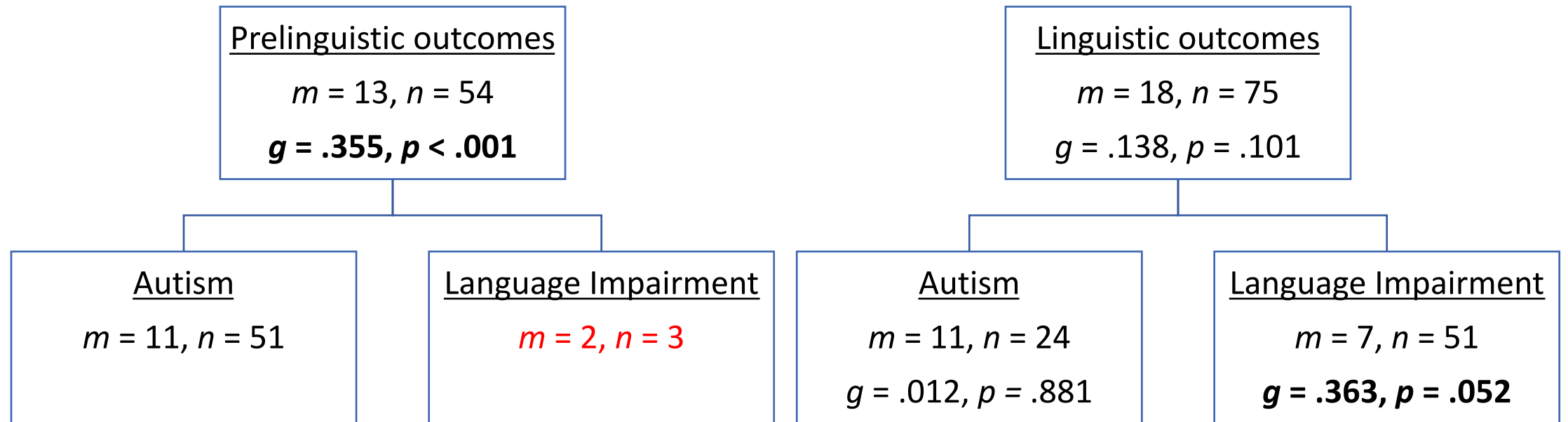
Measured on average 10.26 months post-intervention
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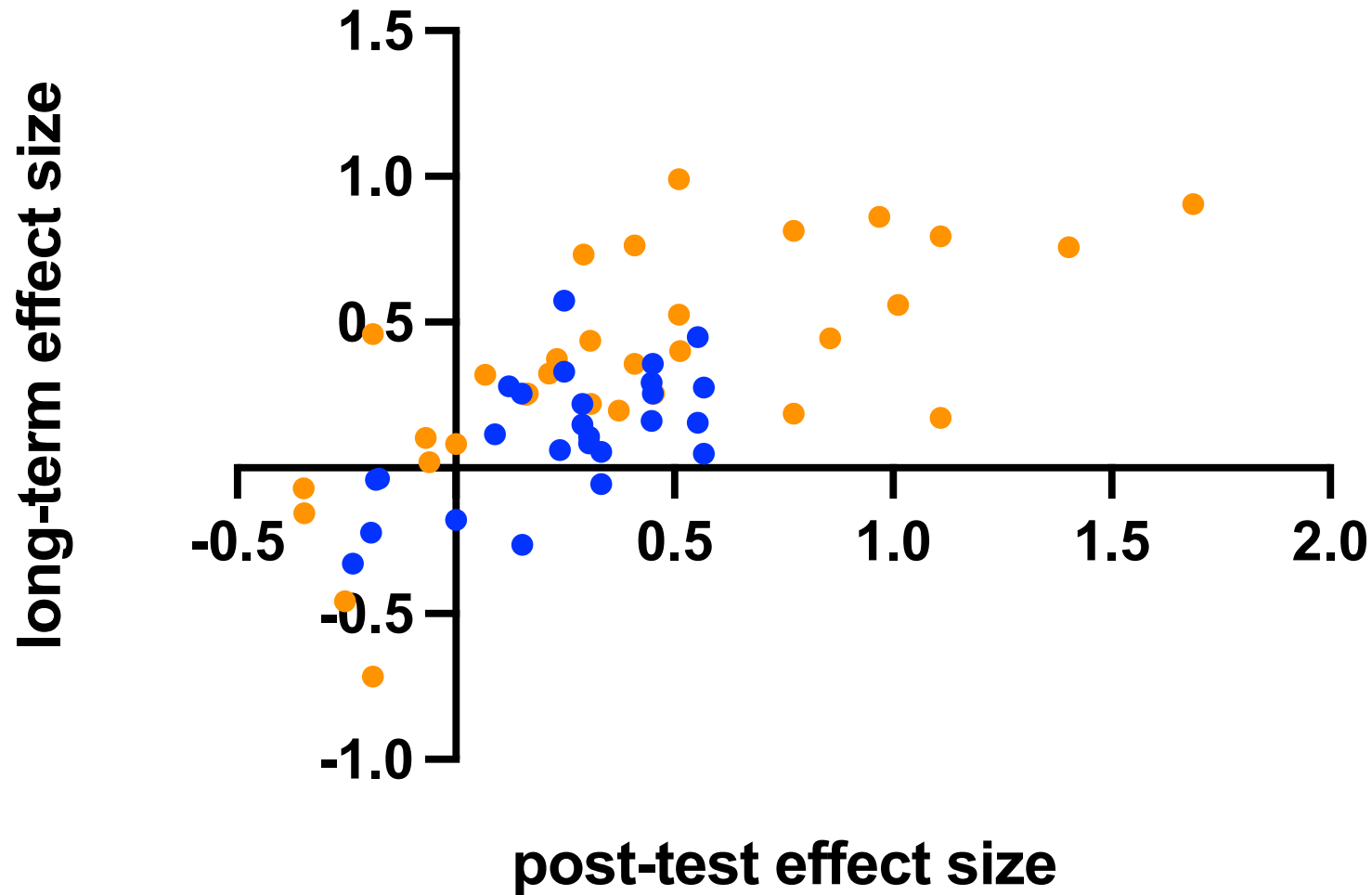
Etiology



Etiology

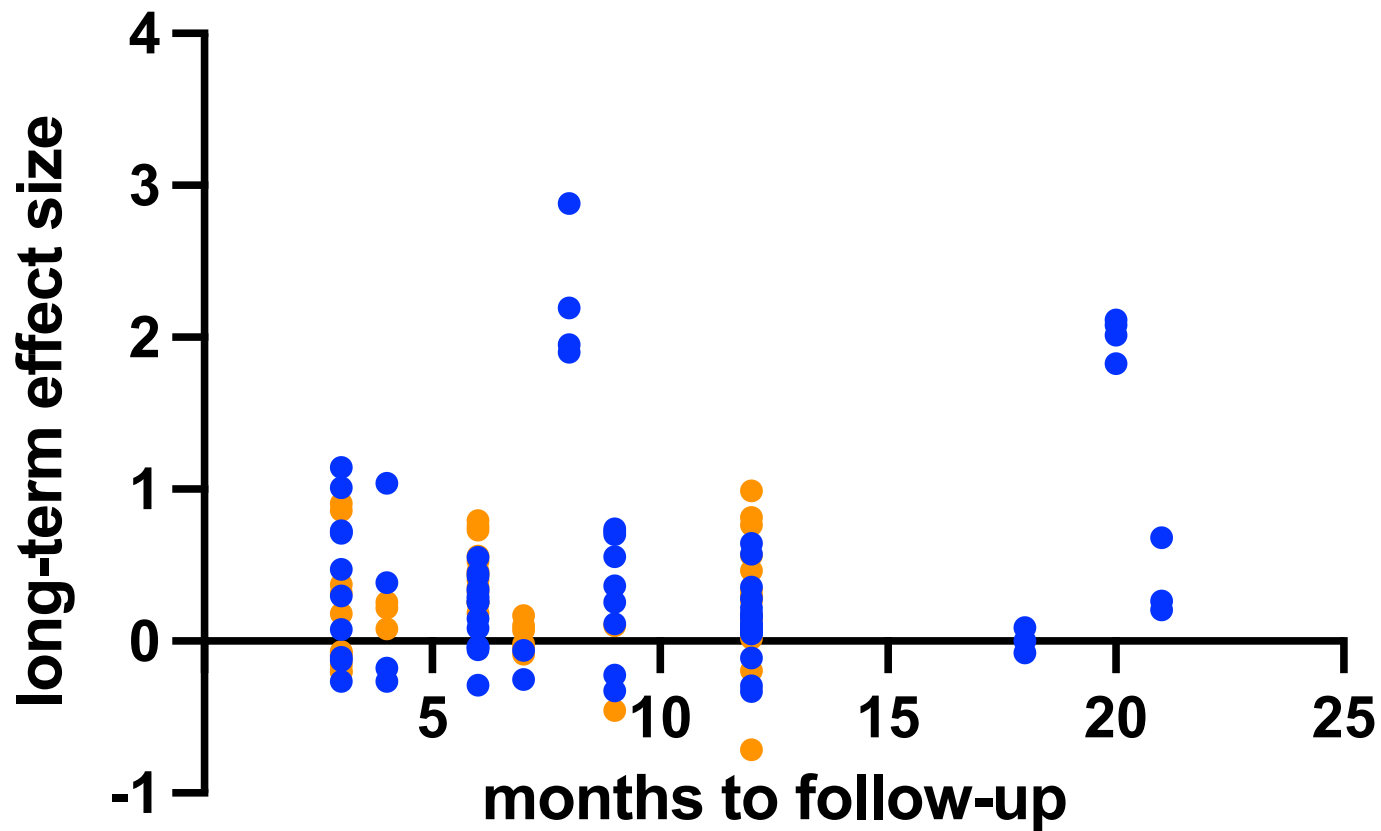


Post-test effects



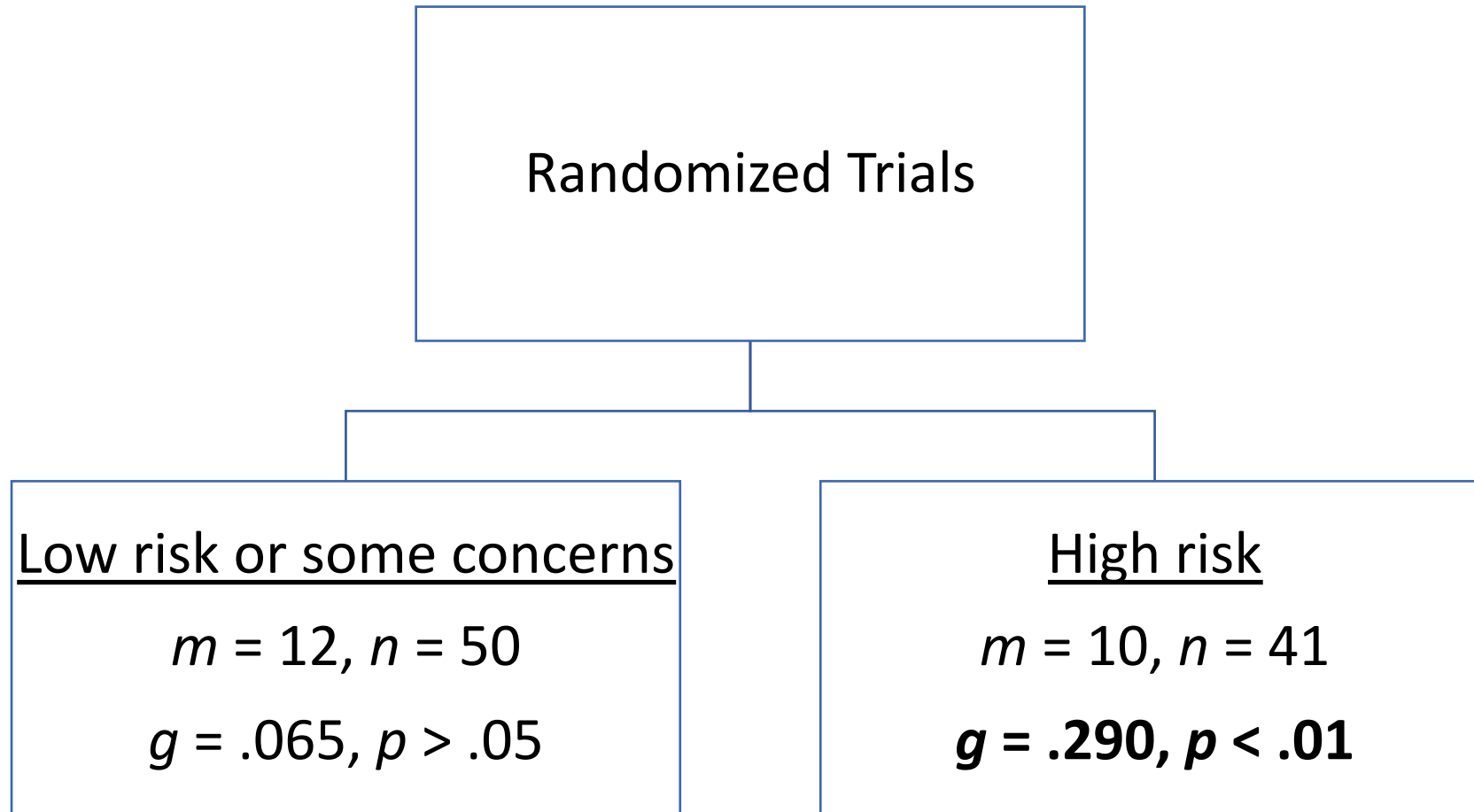
- prelinguistic outcomes
 $\beta = .489, p < .001$
- linguistic outcomes
 $\beta = .433, p < .05$

Time to Follow-Up



- prelinguistic outcomes
 $\beta = .001, p > .05$
- linguistic
 $\beta = -.018, p > .05$

Risk of Bias



Implications and Conclusions

Summary of Findings

- Few studies included outcome measurement beyond 2 years after intervention
- Effects of early communication interventions were significant 1–2 years after intervention in some cases
 - prelinguistic outcomes for children with autism
 - linguistic outcomes for children with language impairment
- Larger post-test effects were associated with larger long-term effects
- High risk on the RoB2 was associated with larger effect sizes

Implications

- Research
 - Consider long term measurement of outcomes when funding allows
 - Interpret context-bound outcomes appropriately (Sandbank et al., 2021)
- Practice
 - Sequence intervention targets
 - Involve families in intervention

Questions?

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- <https://kidtalk.vkcsites.org>