



Understanding the role of peripheral physiology in caregiving interactions: Child maltreatment risk and response to PCIT intervention



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“Invisible” Drivers of At-Risk parenting



- Maladaptive caregiving interactions
- Conflicts between internal reactivity and caregiving parenting demands
- Caregiver physiological responses during parenting
- Dysregulation
- Negative, threat-sensitive child attributions

e.g., Azar & Weinzierl, 2005; Dix, 1991; Lavi et al., 2021; Skowron & Funderburk, 2022

Positive Synchrony, Rupture & Repair Processes in Child Welfare Families

In the high-risk families...

- Parents initiated more ruptures
- Children initiated more repairs
- Fewer successful returns to positive synchrony



In the lower-risk families...

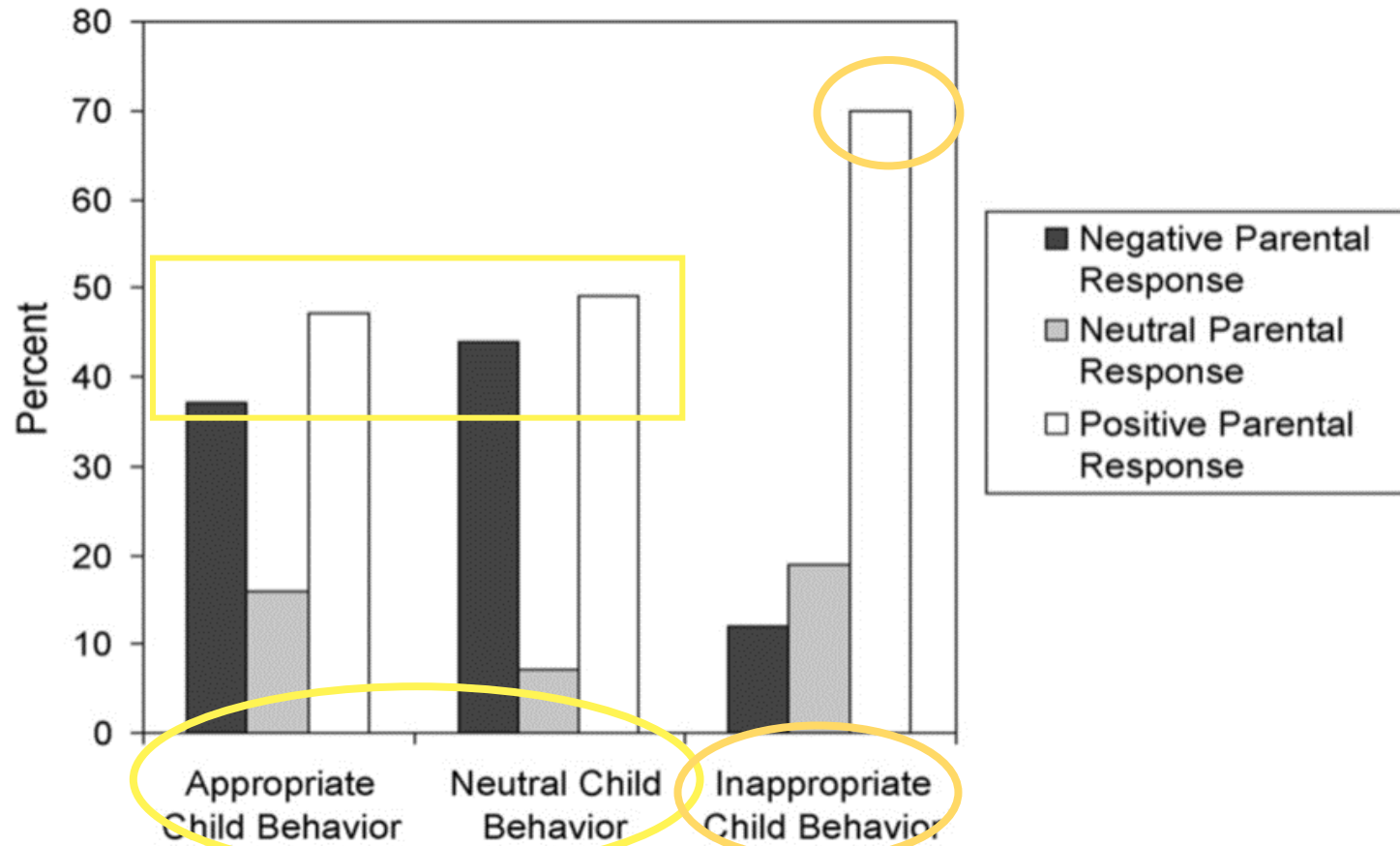
- Children initiated ruptures
- Parents initiated more repairs
- More successful repairs



Caregiver Response Patterns in Child Welfare Families:

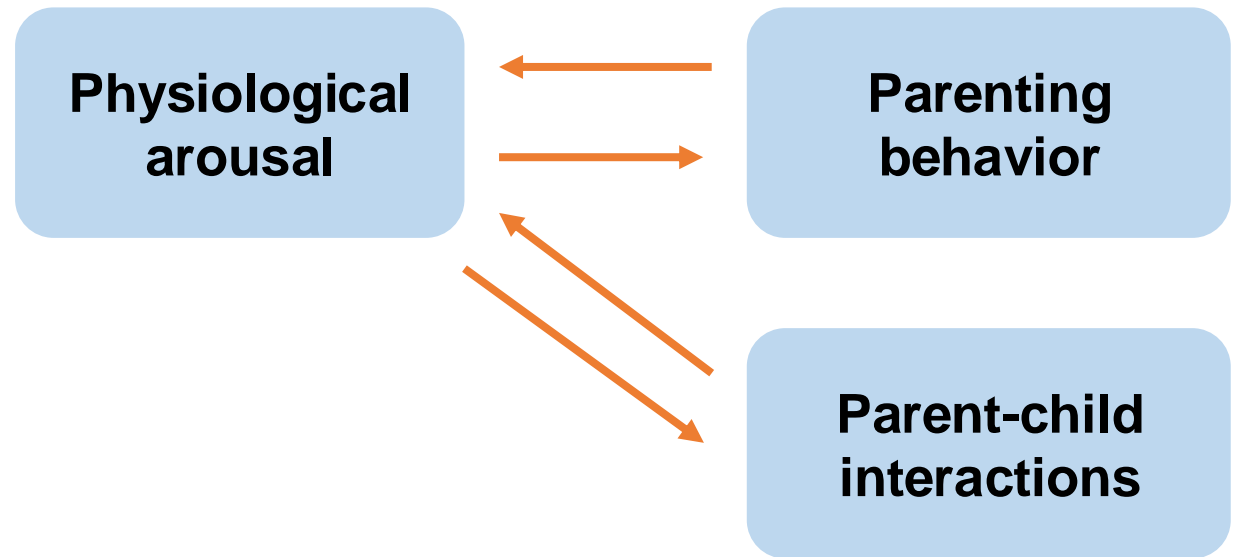
Inconsistent/unpredictable, & reinforcing negative child behavior

Parent Response to Child



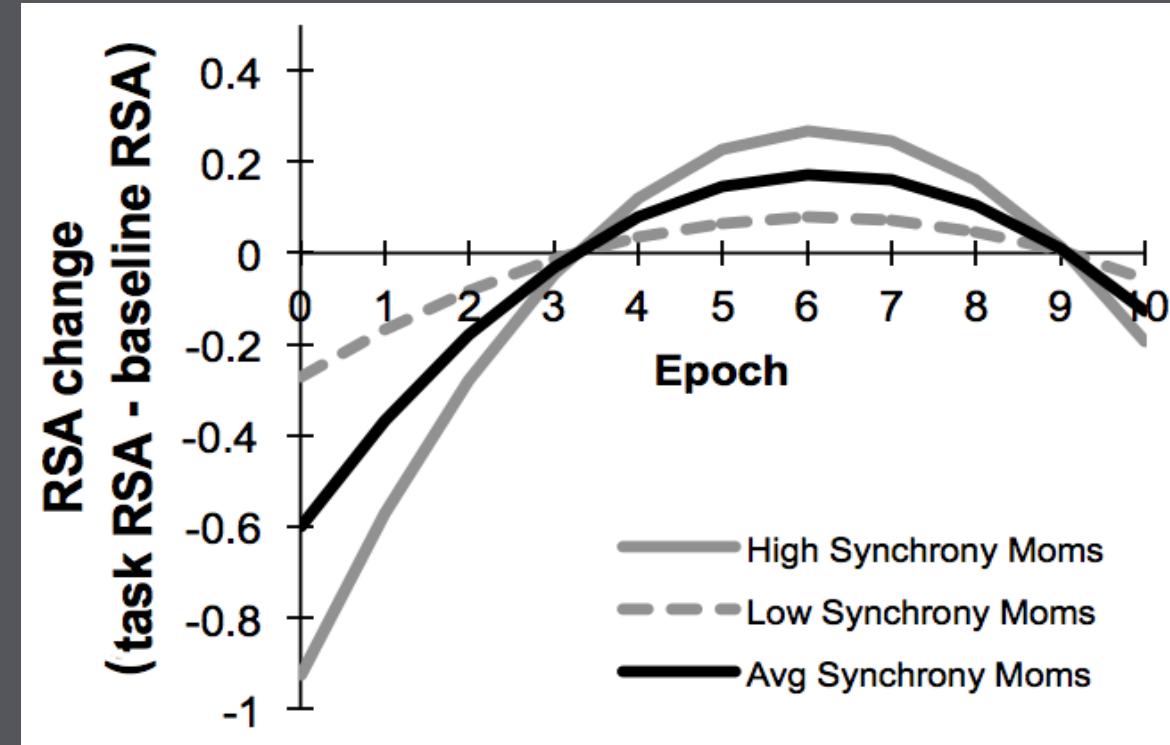
Parent Physiological Responses during Caregiving Interactions in Child Welfare Families

See dynamic associations in moment-to-moment physiology and caregiving-behavior?



Positive *Behavioral* Synchrony: ↑ Dynamic Physiology

- Mothers who achieved high levels of positive synchrony with their child → *most responsive psychophysiological profile*
 - large RSA withdrawal at task onset, followed by sharp RSA increases over time
- Mothers who achieved low levels of positive synchrony showed attenuated (*less responsive*) psychophysical profiles



Giuliano, Skowron, & Berkman, 2015,
Biological Psychology

Physically abusive parents



↑ Warm, responsive



↑ Physiological Arousal
(RSA declines)



↑ Harsh, controlling

Physically neglectful parents



↑ Harsh, controlling



↑ Physiological Arousal

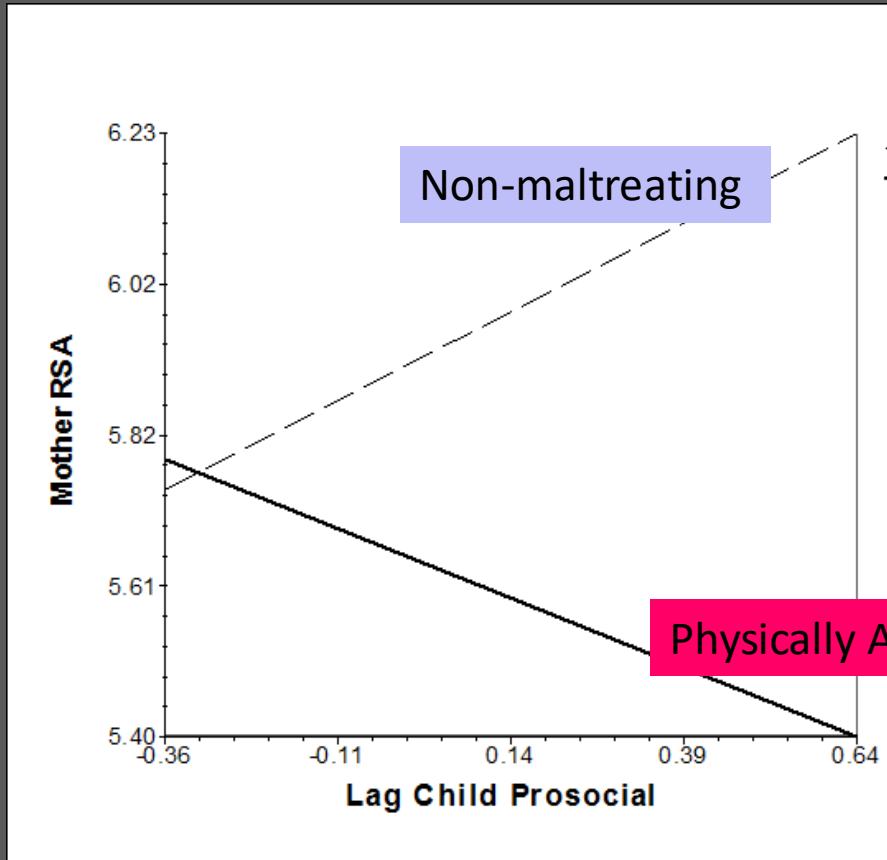


↑ Warm, responsive

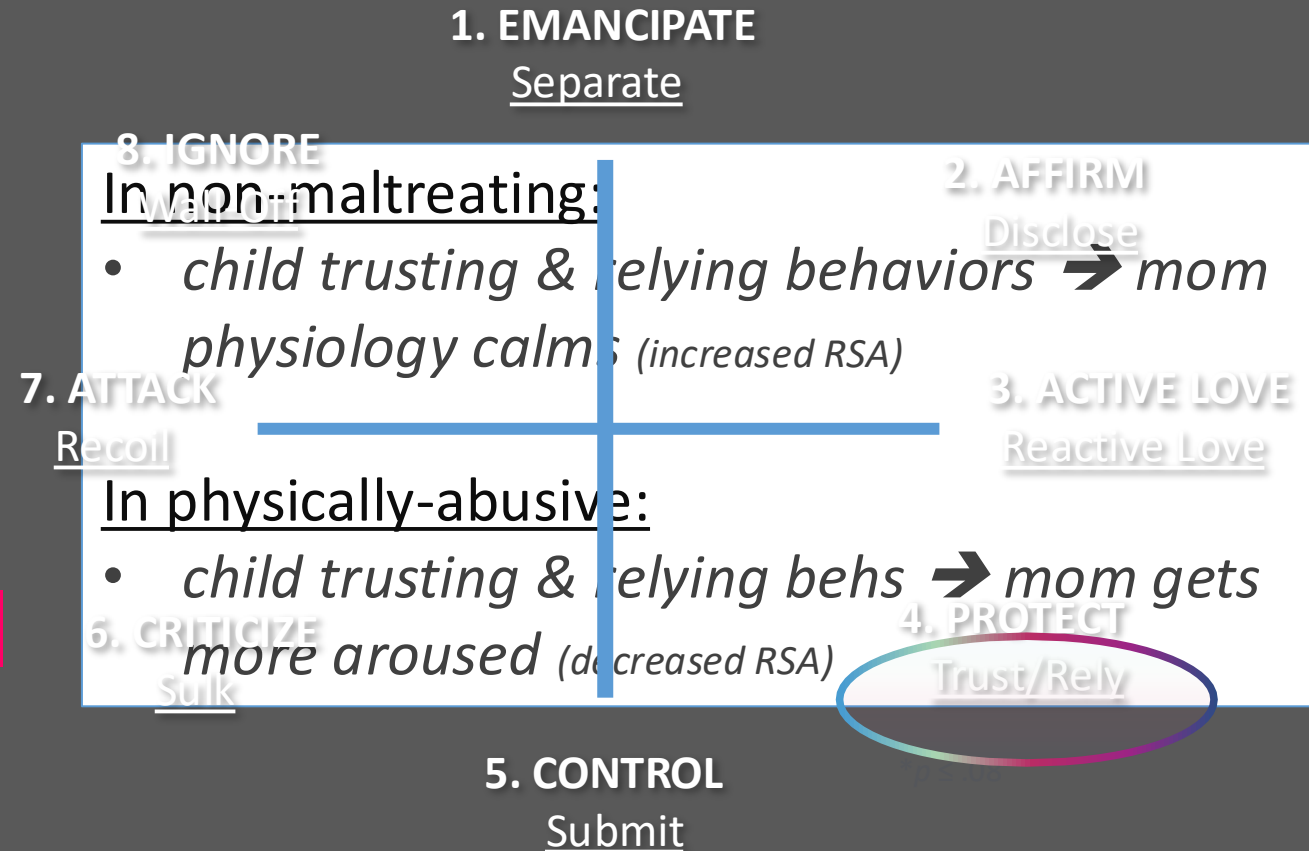


↑ Physiological Calm

Child Trust & Rely Behavior → Maternal Physiological Response



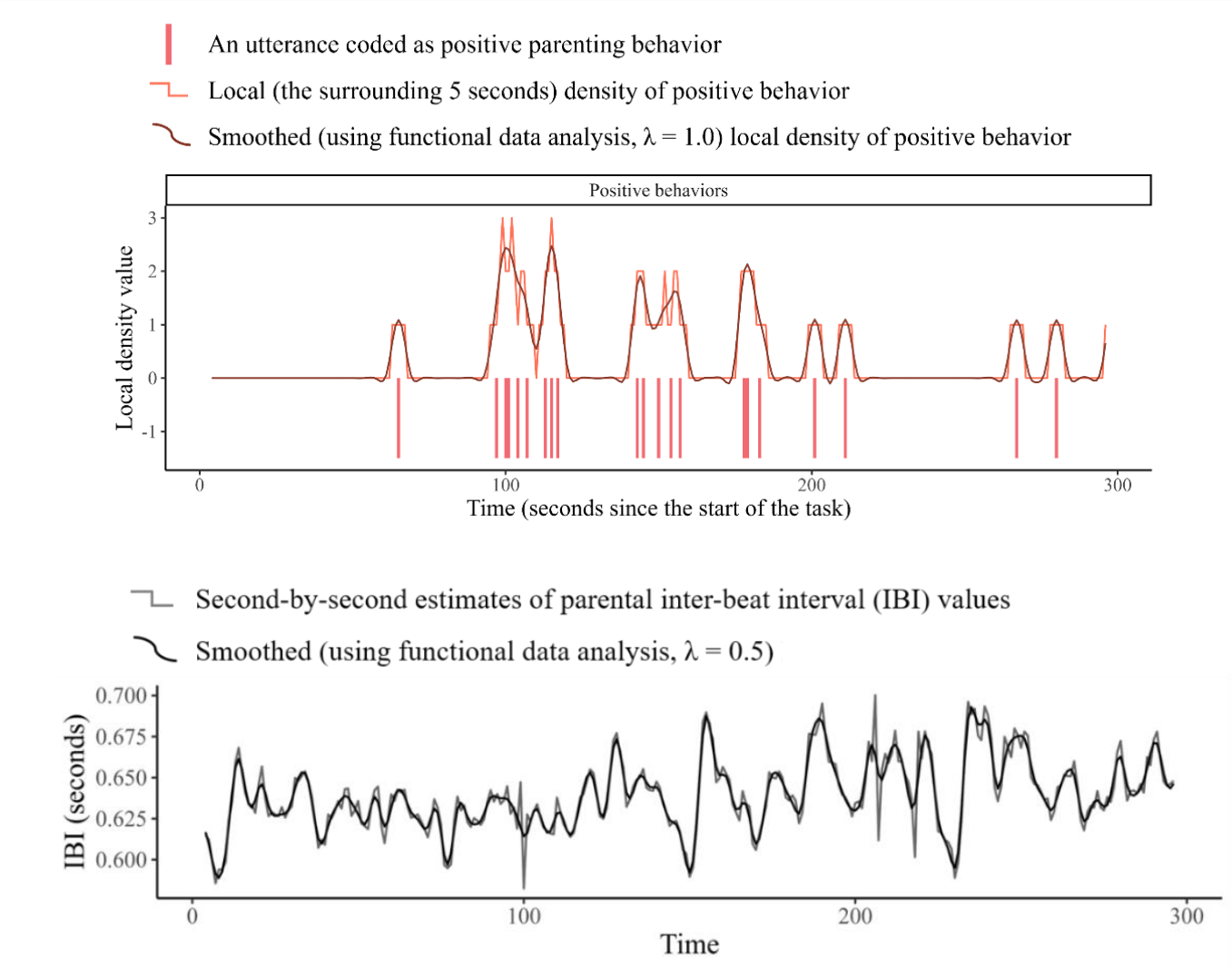
*age covaried in models



Parent Physiology during Caregiving Interactions in Child Welfare Families at Intake

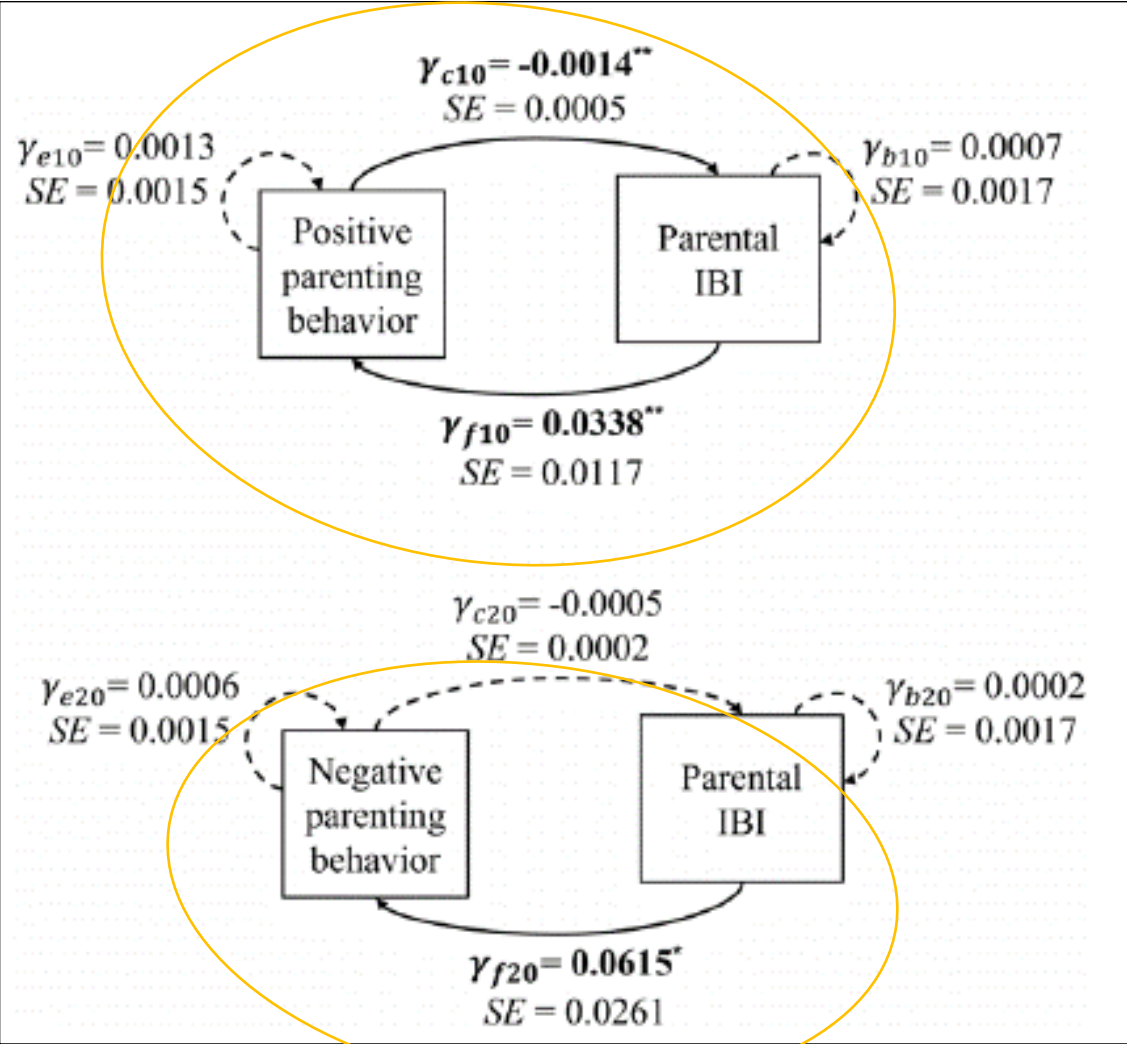


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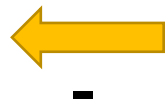
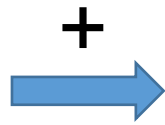
Zhang X, Gatzke-Kopp LM, & Skowron EA. (2023). Dynamic regulatory processes among child welfare parents: Temporal associations between physiology and parenting behavior. *Development and Psychopathology*. doi:10.1017/S0954579423000949

Parent Physiology during Caregiving Interactions in Child Welfare Families at Intake



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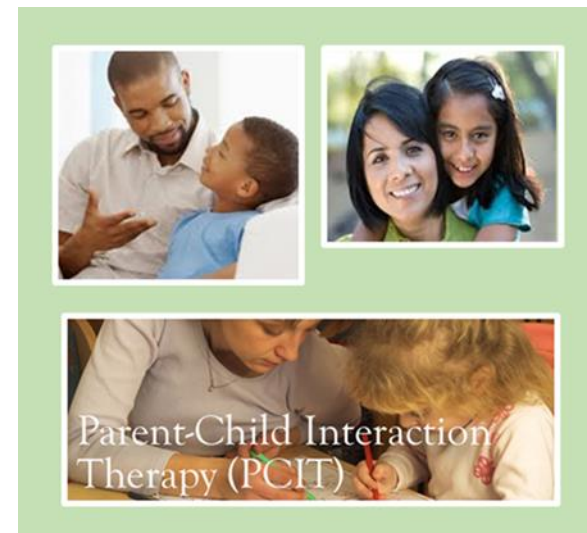
Parent Physiological Responses during Caregiving Interactions in Child Welfare Families at Intake



- Positive parenting → physiologically taxing
- Physiological arousal → verbal disengagement
↓ *pos. & neg. behaviors*



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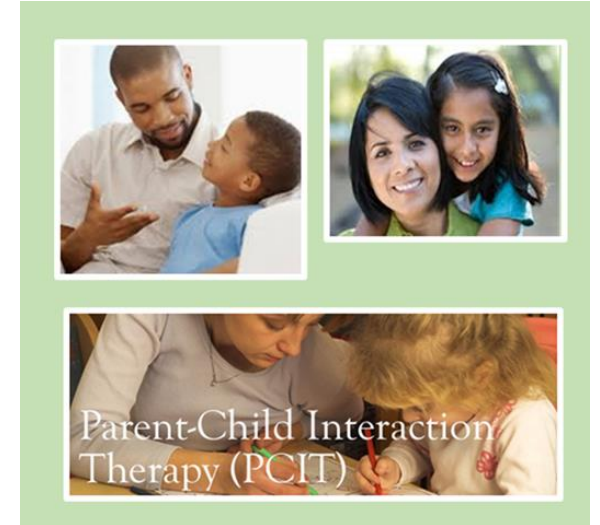


Parent-Child Interaction Therapy (PCIT)

e.g., Chaffin et al., 2004, 2009; Eyberg et al., 2001; Funderburk et al., 2014; Kennedy, et al., 2016; Thomas et al., 2017

Parent-Child Interaction Therapy (PCIT)

- Families w/children ages 2-7
- Live-coaching format
- Assessment-driven
- Designed to treat disruptive child behavior disorders
- Effective with ethnic/racially diverse families



Chaffin et al., 2004, 2011;

Eyberg et al., 2001;

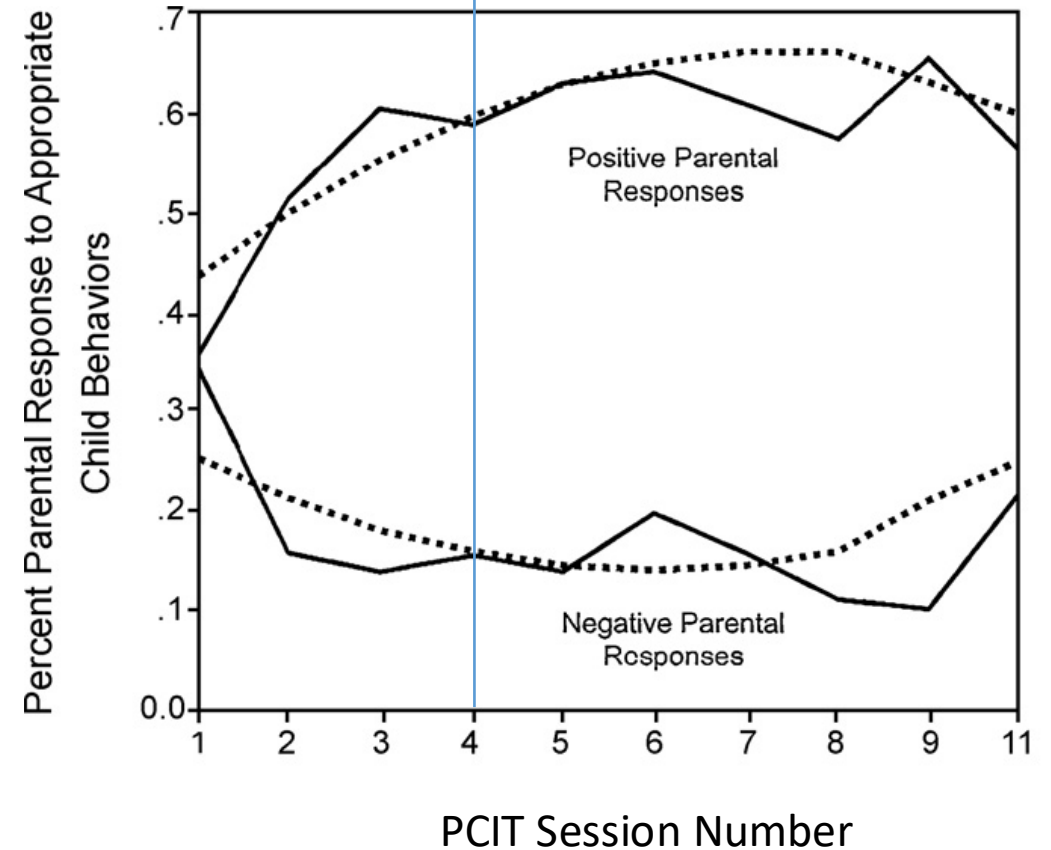
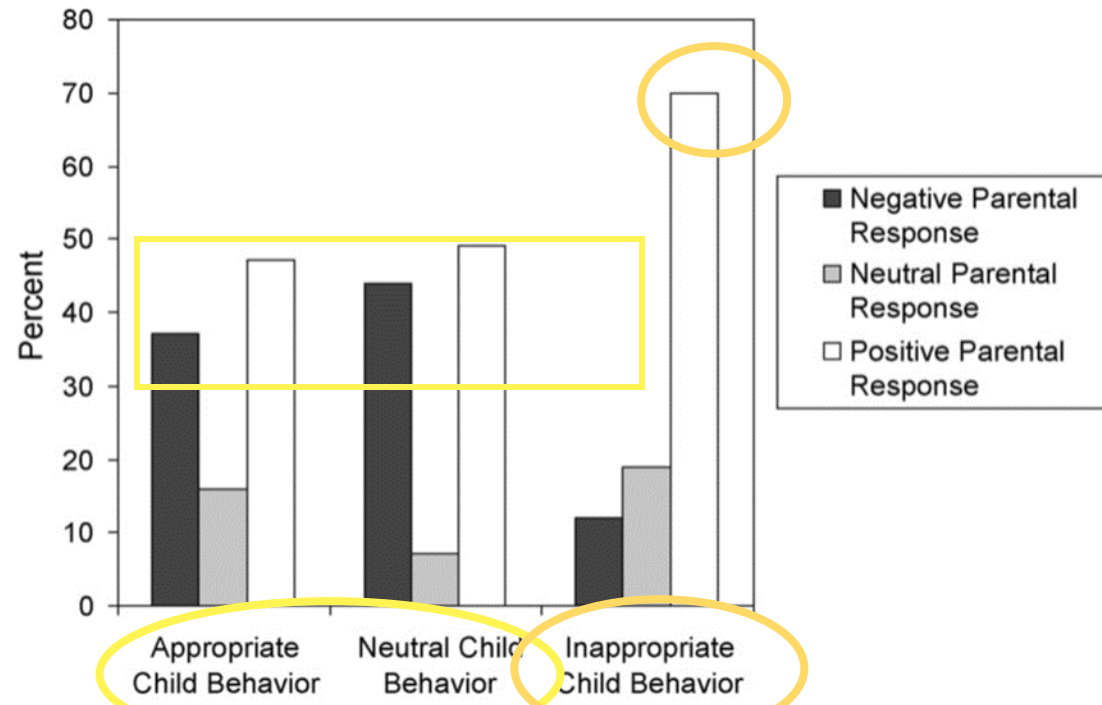
Funderburk et al., 2014;

Skowron et al., 2024

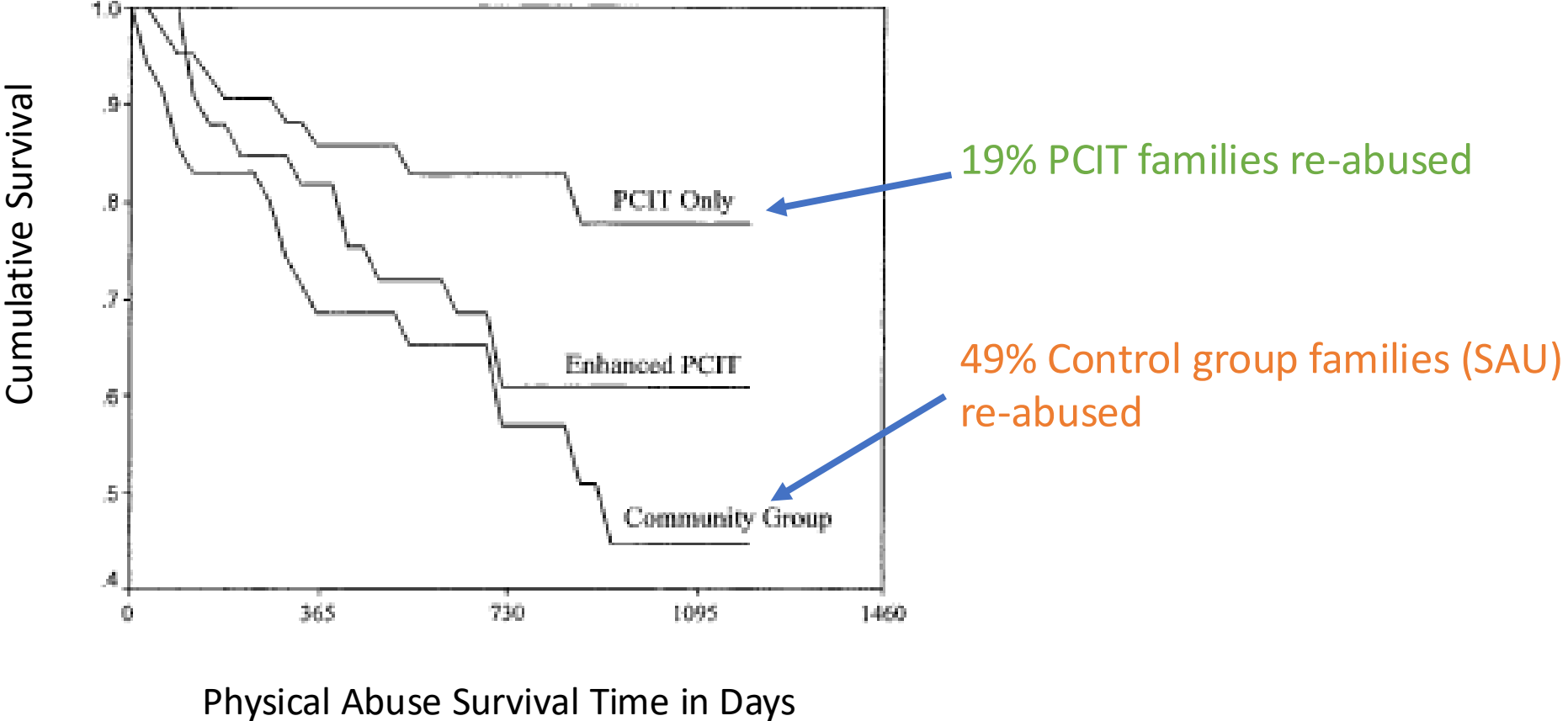
Thomas & Zimmer-Gembeck, 2011

PCIT strengthens contingent positive parenting...

CM Parent Responding at Pre-Treatment



...and lowers CM re-abuse risk up to 3 years after treatment



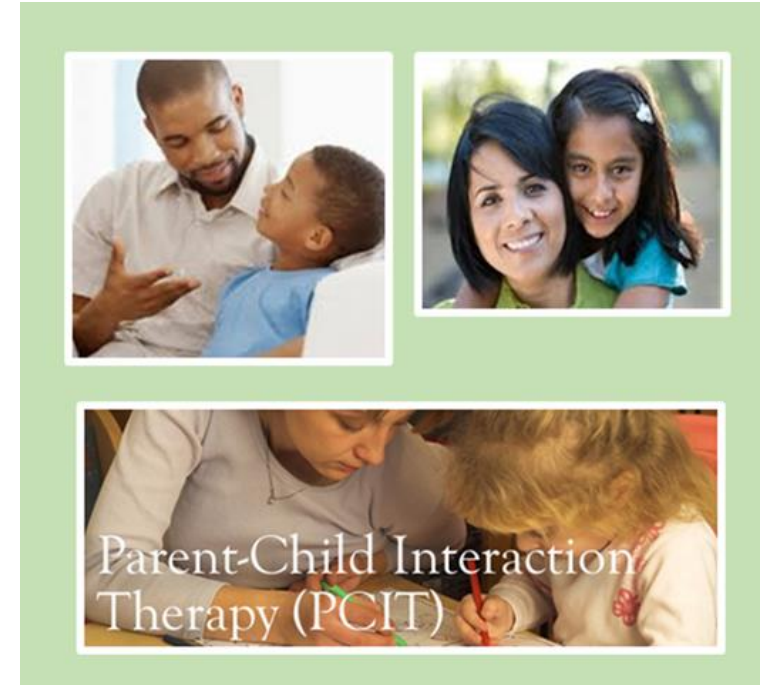
Why PCIT for Child Welfare Involved Families?

- Parents practice new skills during therapy sessions^{1,2}
 - Warm, responsive caregiving; following child's lead in play
 - Positive discipline/limit-setting training
- Therapists provide live (real-time) coaching to parents
 - Provide in-vivo social regulation / scaffolding³
 - Gently block negative behaviors, coach positive PRIDE skills use
 - Positive caregiver-child interactions become self-sustaining over time?
 - Parents' experiences with their child become more enjoyable and rewarding?



PCIT: 1. Child Directed Interaction

- Parents learn
 - To follow their child's lead in the play
 - PRIDE skills: Specific, positive parenting skills
 - (labelled) Praise
 - Reflections
 - Imitation
 - (behavior) Descriptions
 - Enjoyment
 - In-session skills practice with real-time therapist support
 - “Special Time” home practice (5' daily)



PCIT: 2. Parent Directed Interaction

- Parents learn
 - Safe, effective limit-setting & positive discipline practices
 - Using direct commands:
 - Positively-stated
 - Developmentally-appropriate
 - Possible to obey
 - One instruction at a time
 - Appropriate follow-through:
 - Praise for following instruction
 - Brief time-out from positive reinforcement for non-comply
 - In-session skills practice with intensive therapist support



Coaching Alternative Parenting Strategies (CAPS)



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randomized clinical trial of PCIT

N = 204 child welfare families



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N = 204 child welfare families

Randomized to PCIT or SAU control

Parents

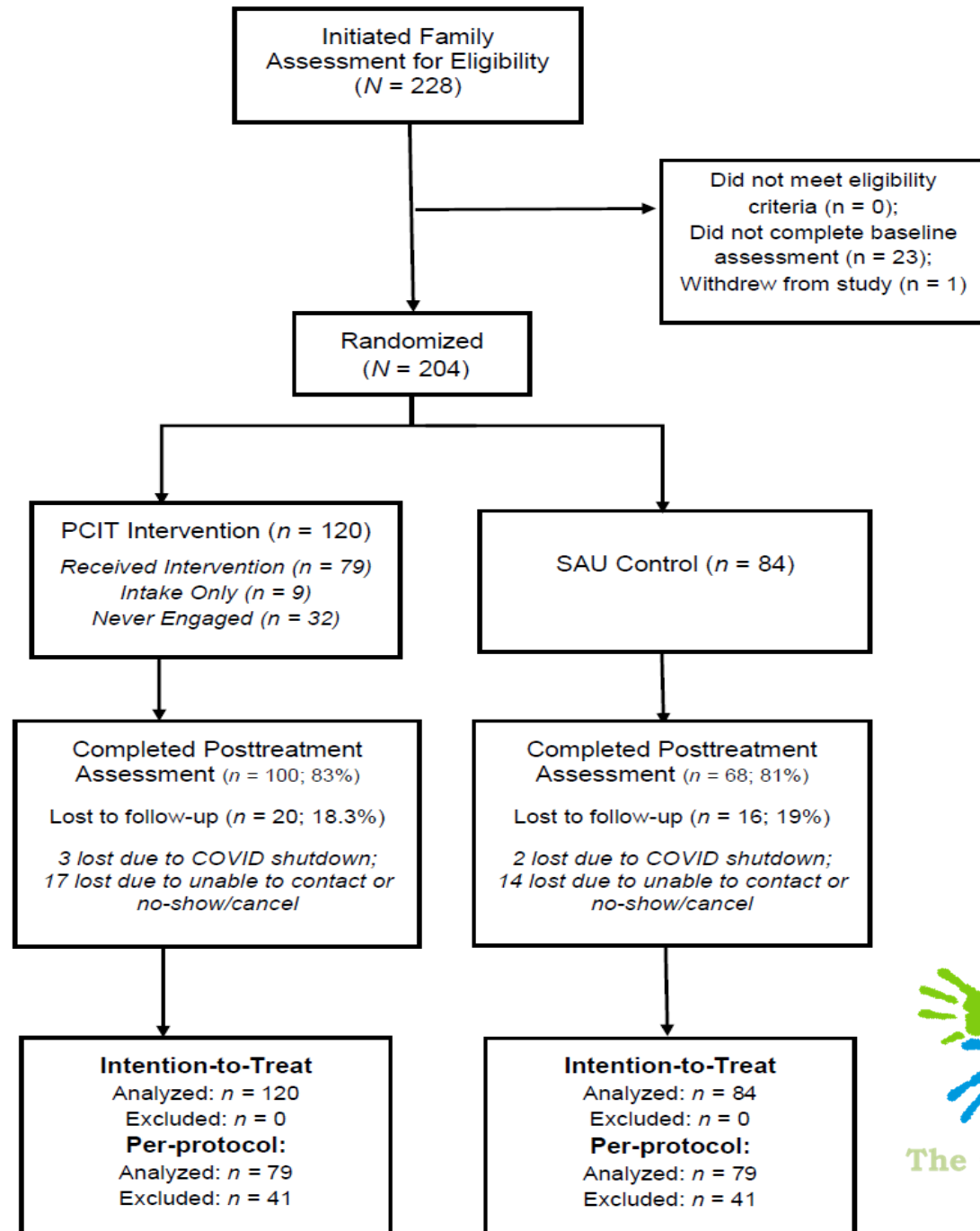
- *M* = 32 yrs. old
- 30% racial/ethnically diverse
- 73.5% experienced 4+ ACEs

Children

- 3-7 yrs. old; 54% boys

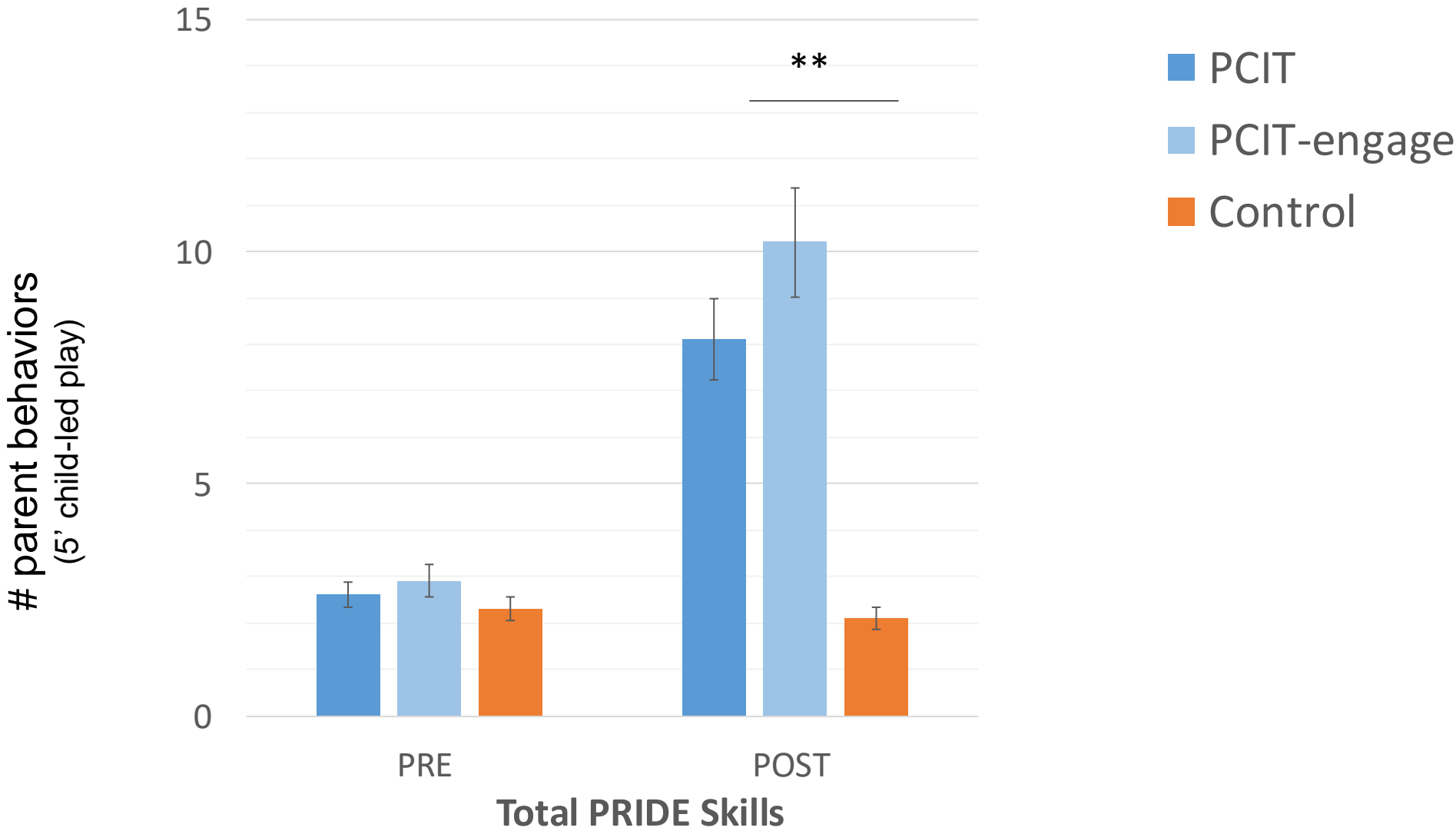
Households

- Med. Income: \$14,400
- Below poverty line: 79% families



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PCIT improves positive parenting skills (ITT & per-protocol)

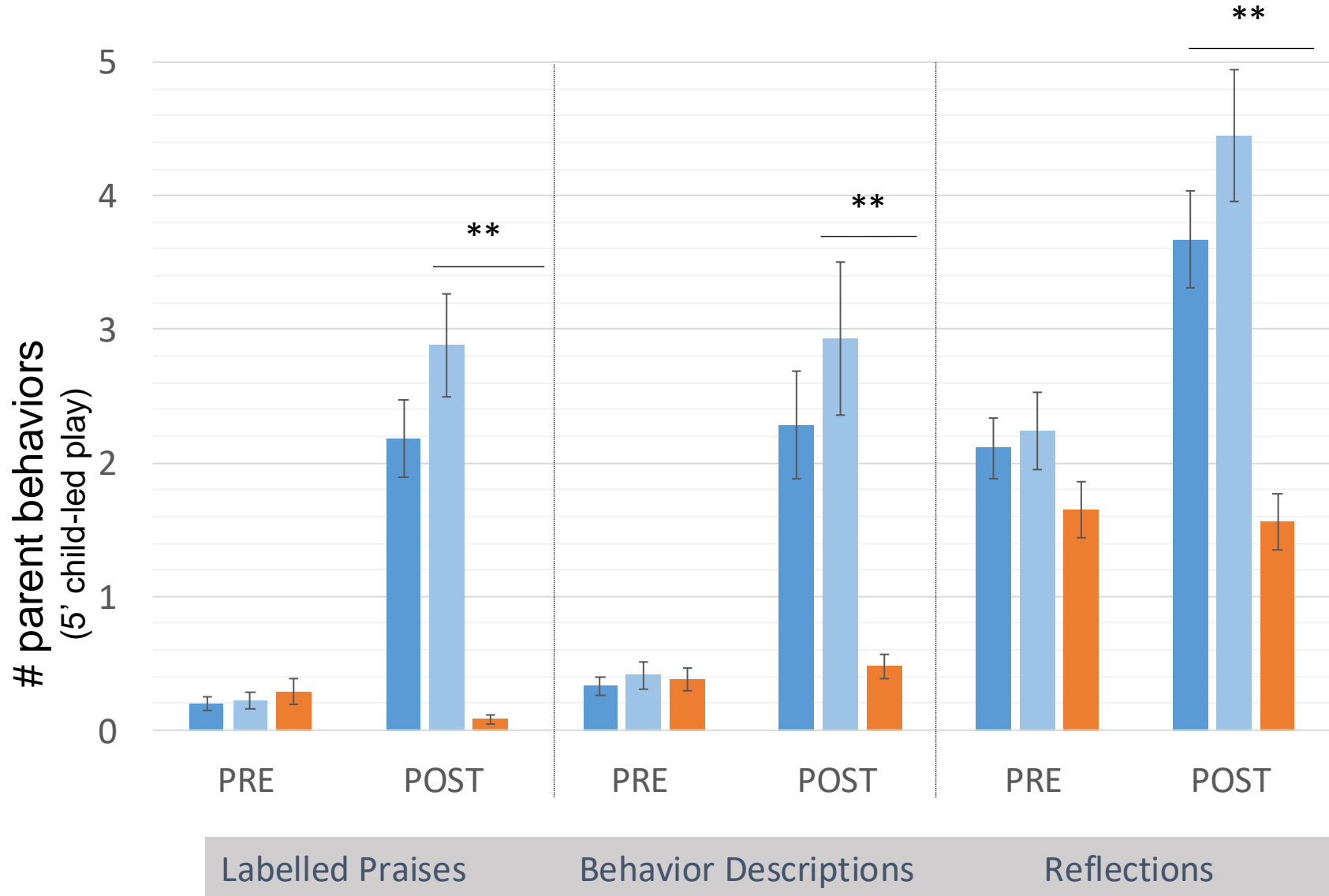


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Skowron et al., 2024, JCCP

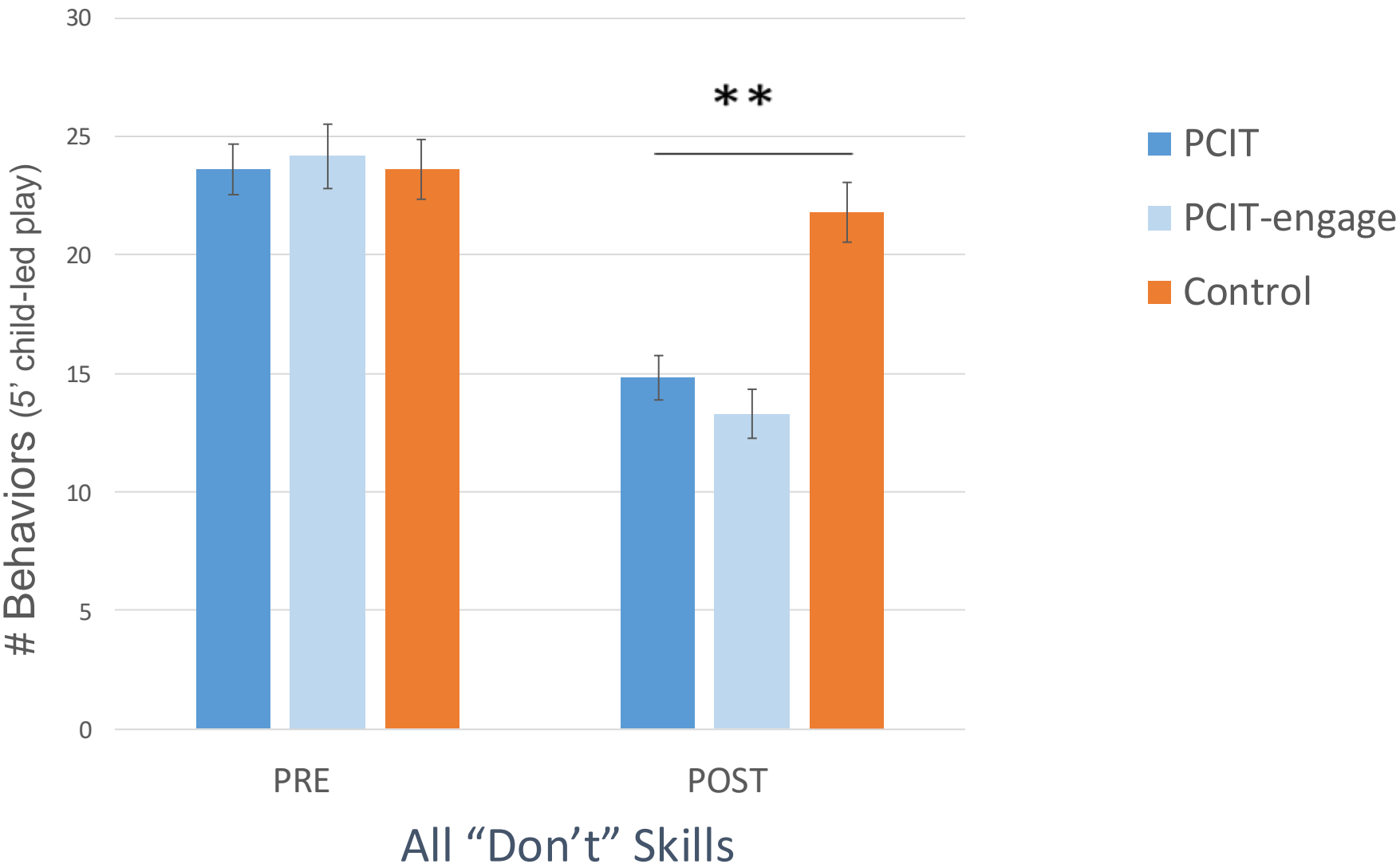
PCIT improves positive parenting skills (ITT & per-protocol)

- PCIT
- PCIT-engage
- Control



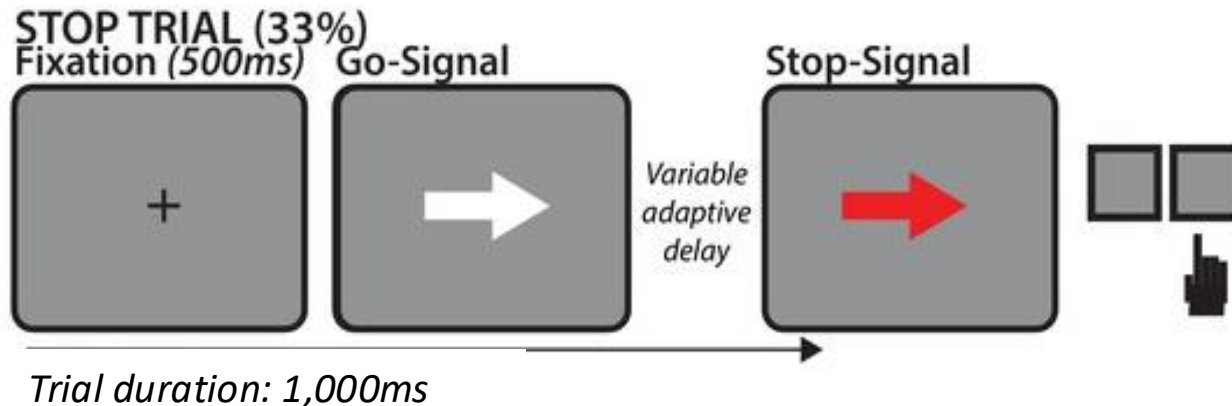
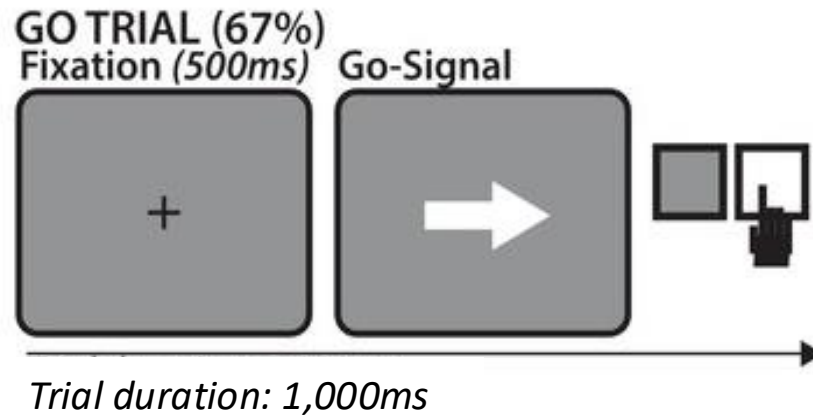
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PCIT reduces negative parenting during child-led play



PCIT Strengthens CW Parents' Self-Regulation Skills

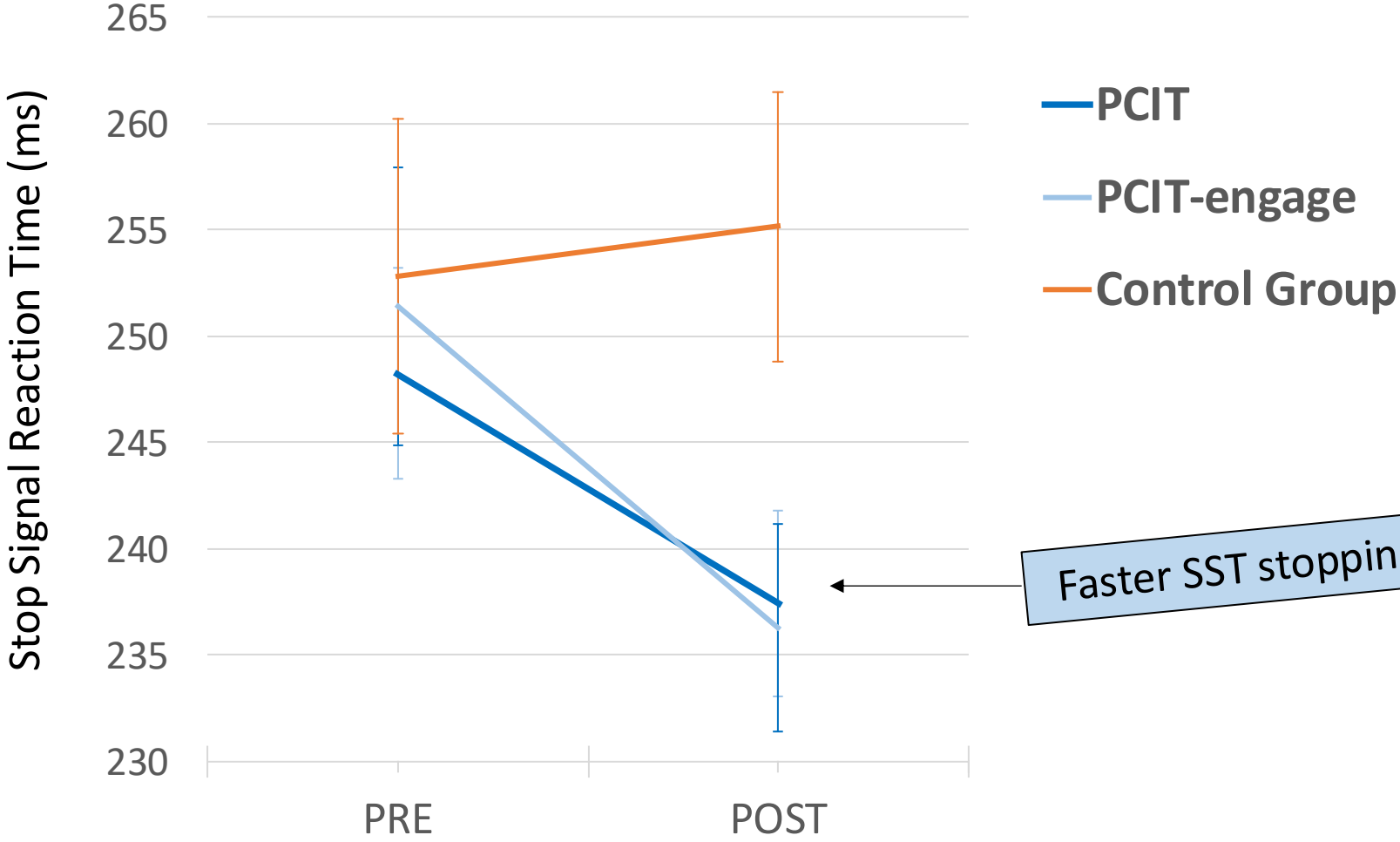
STOP-SIGNAL TASK



SSRT = Stop signal reaction time
Faster → better inhibitory control



PCIT Strengthens Parents' Inhibitory Control



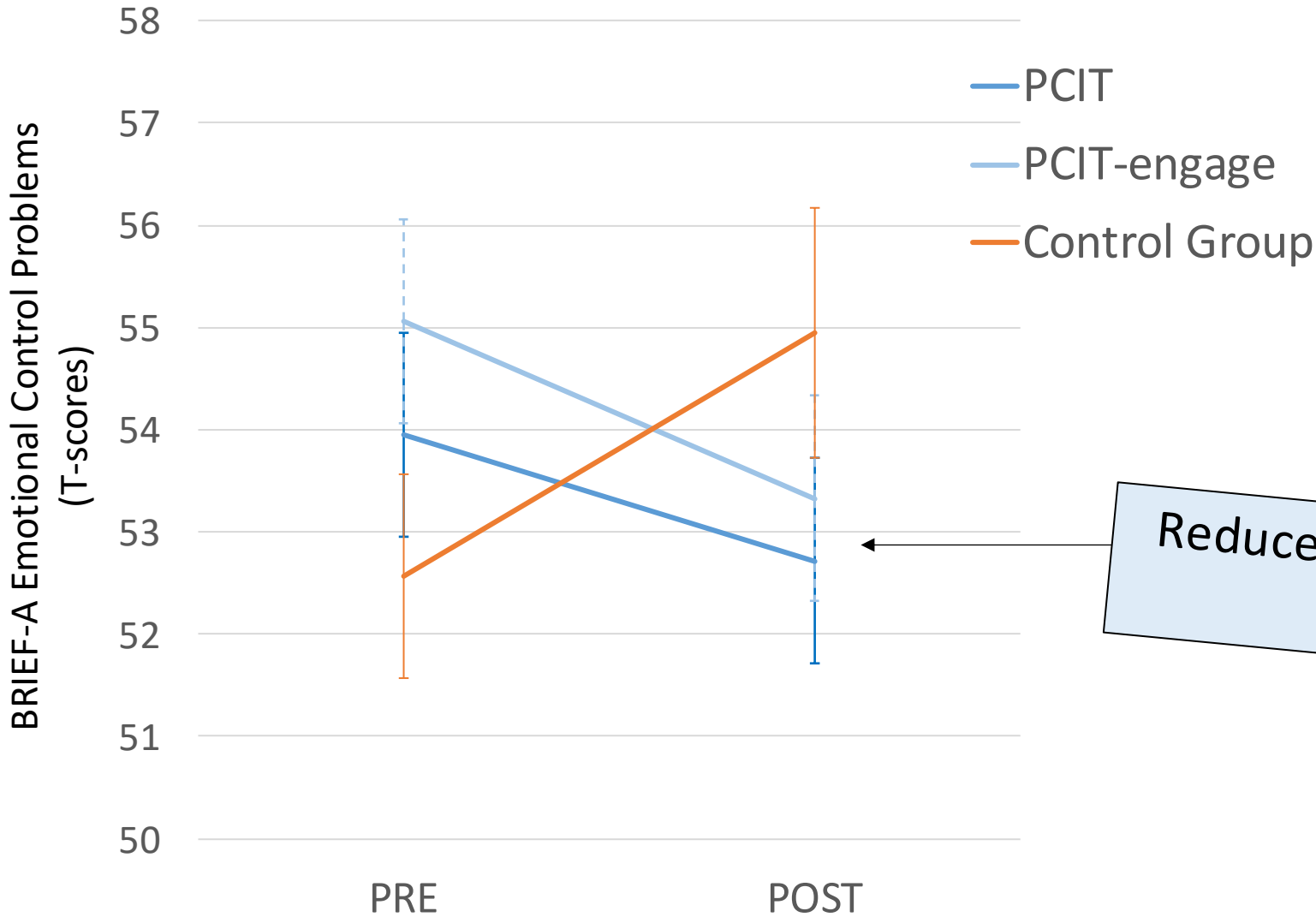
Faster SST stopping scores = **better inhibitory control**



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Skowron et al., 2024, JCCP

PCIT strengthens CW parents' emotion regulation (BRIEF-A)



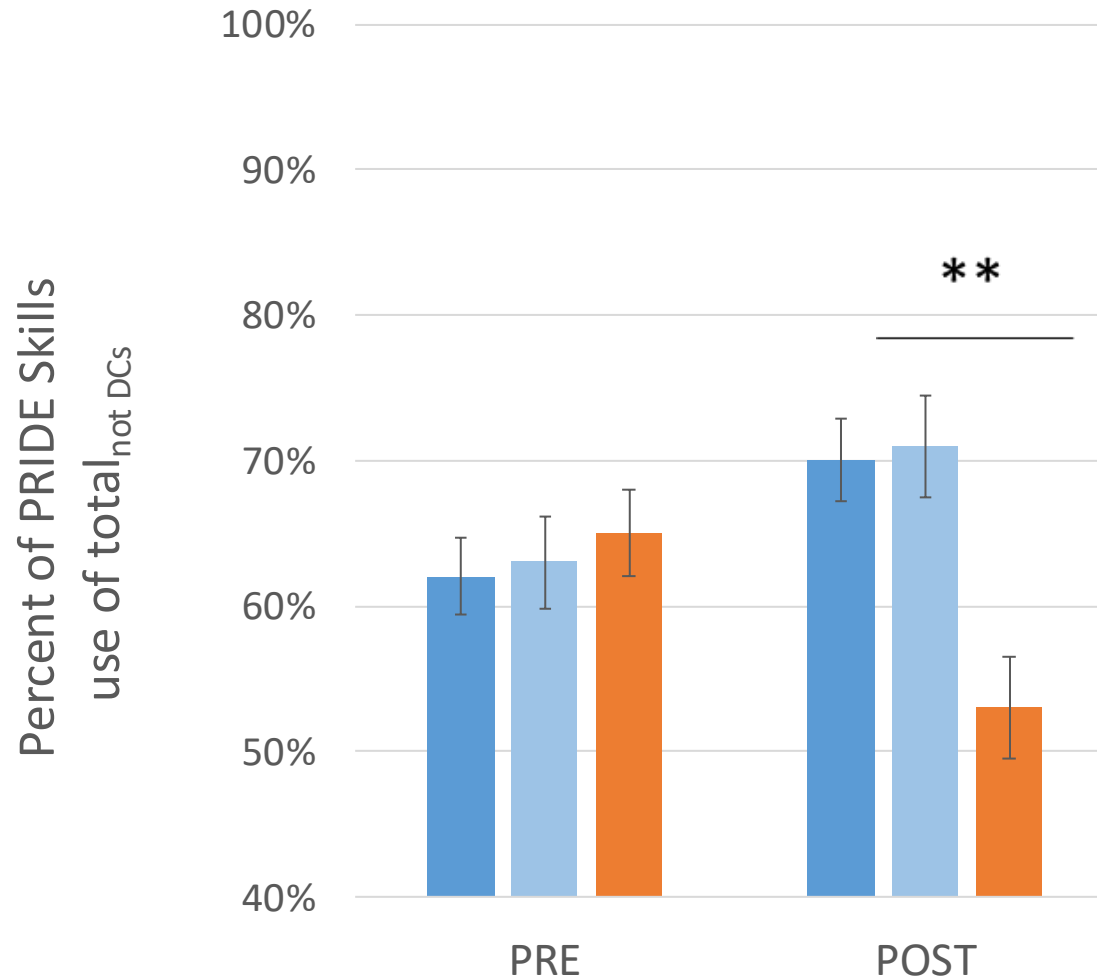
Reduced Emotional Control Problems



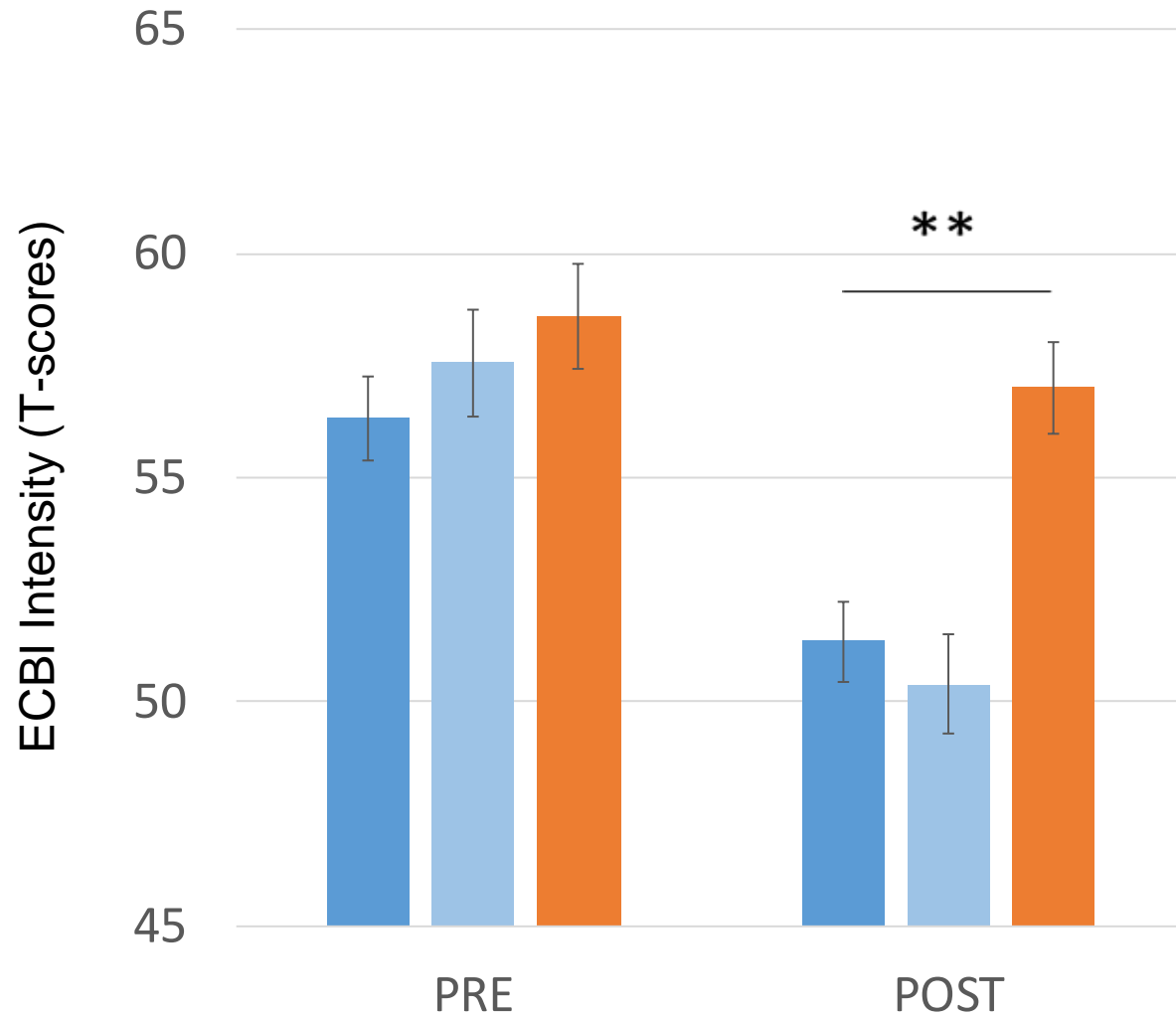
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During Clean-Up: PCIT increases positive parenting skills use, *when parents aren't giving commands*

- PCIT
- PCIT-engagers
- Control



Disruptive Child Behavior Problems: PCIT reduces ECBI Intensity Scores in CW children

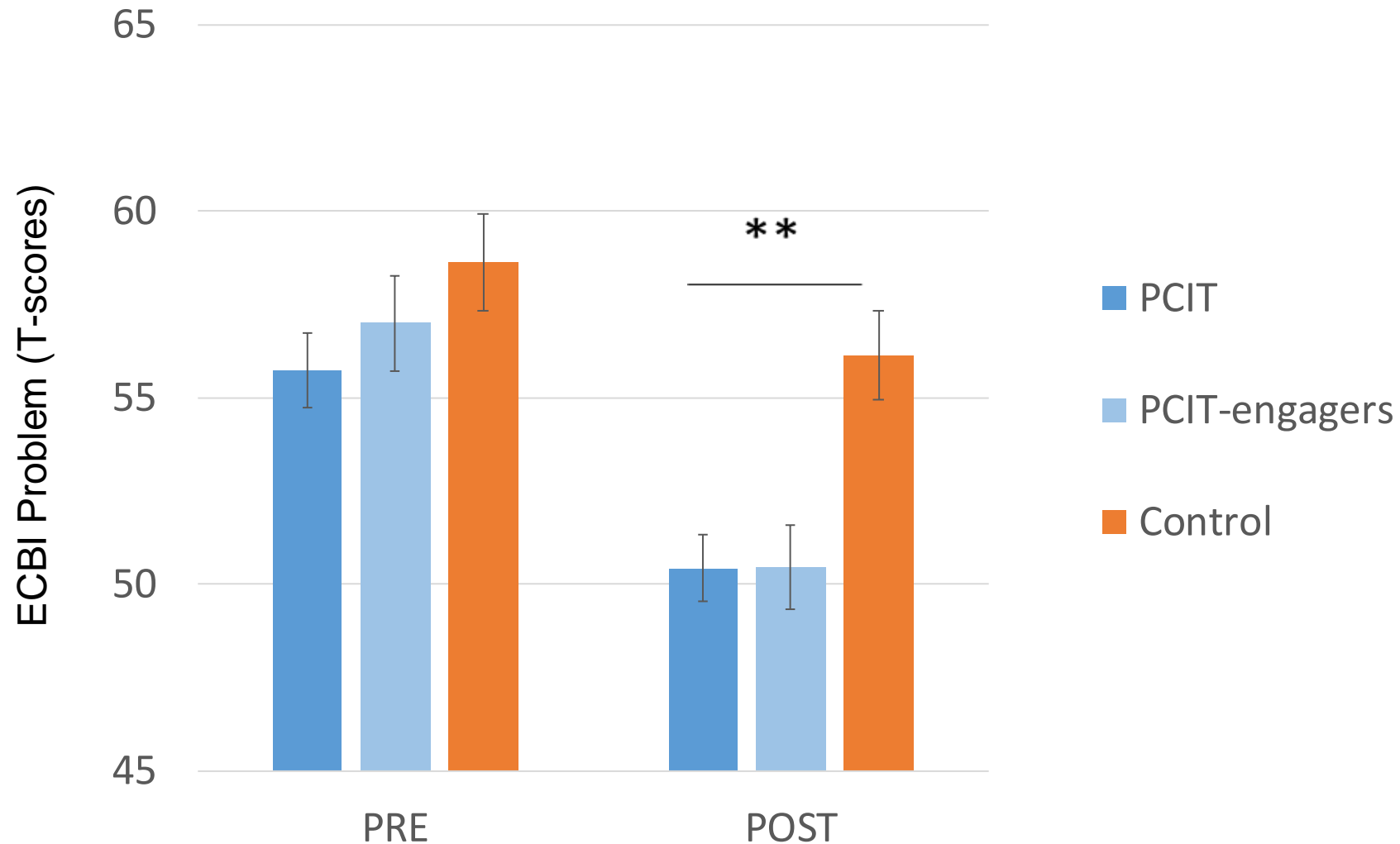


- PCIT
- PCIT-engagers
- Control

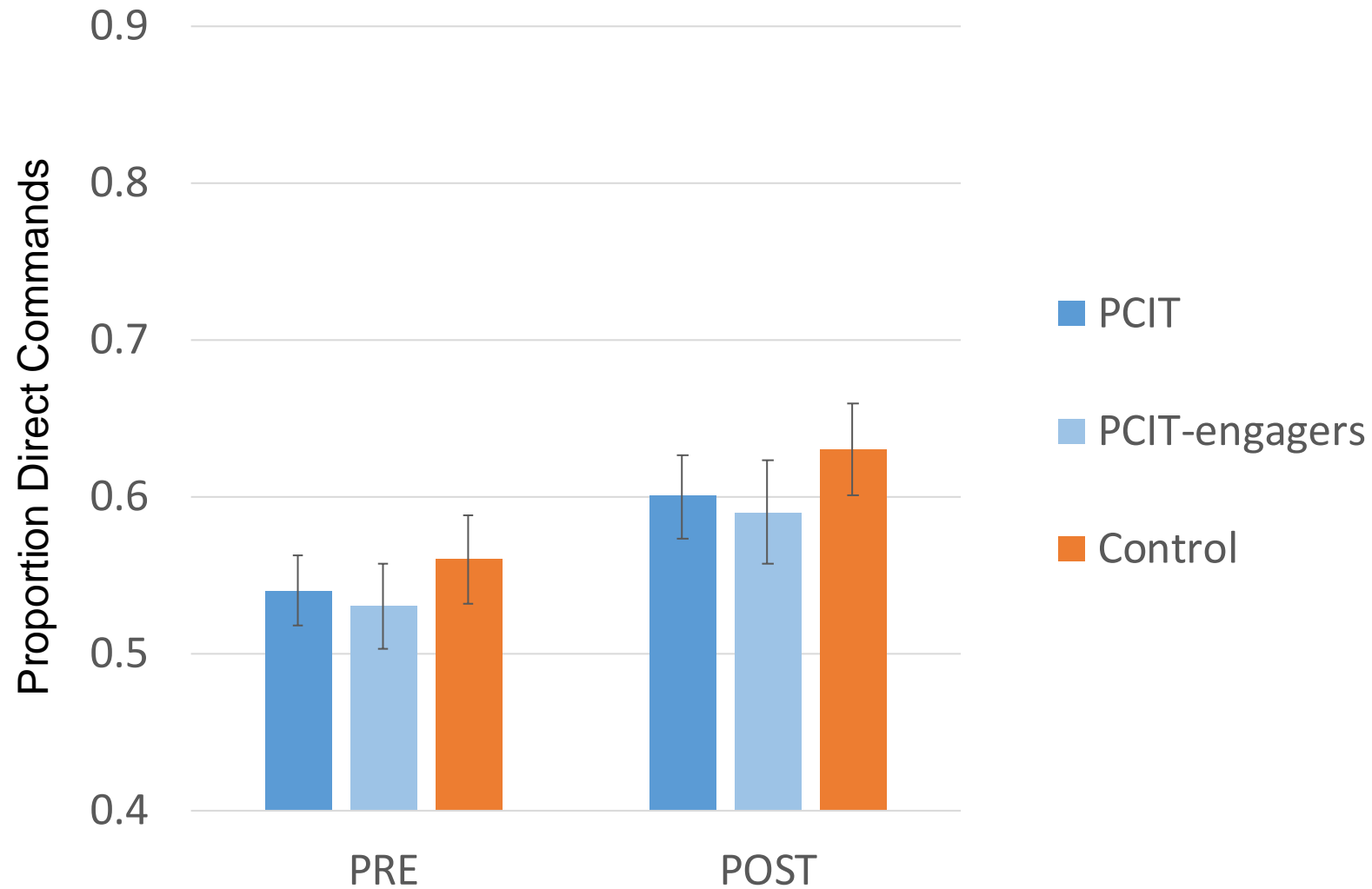


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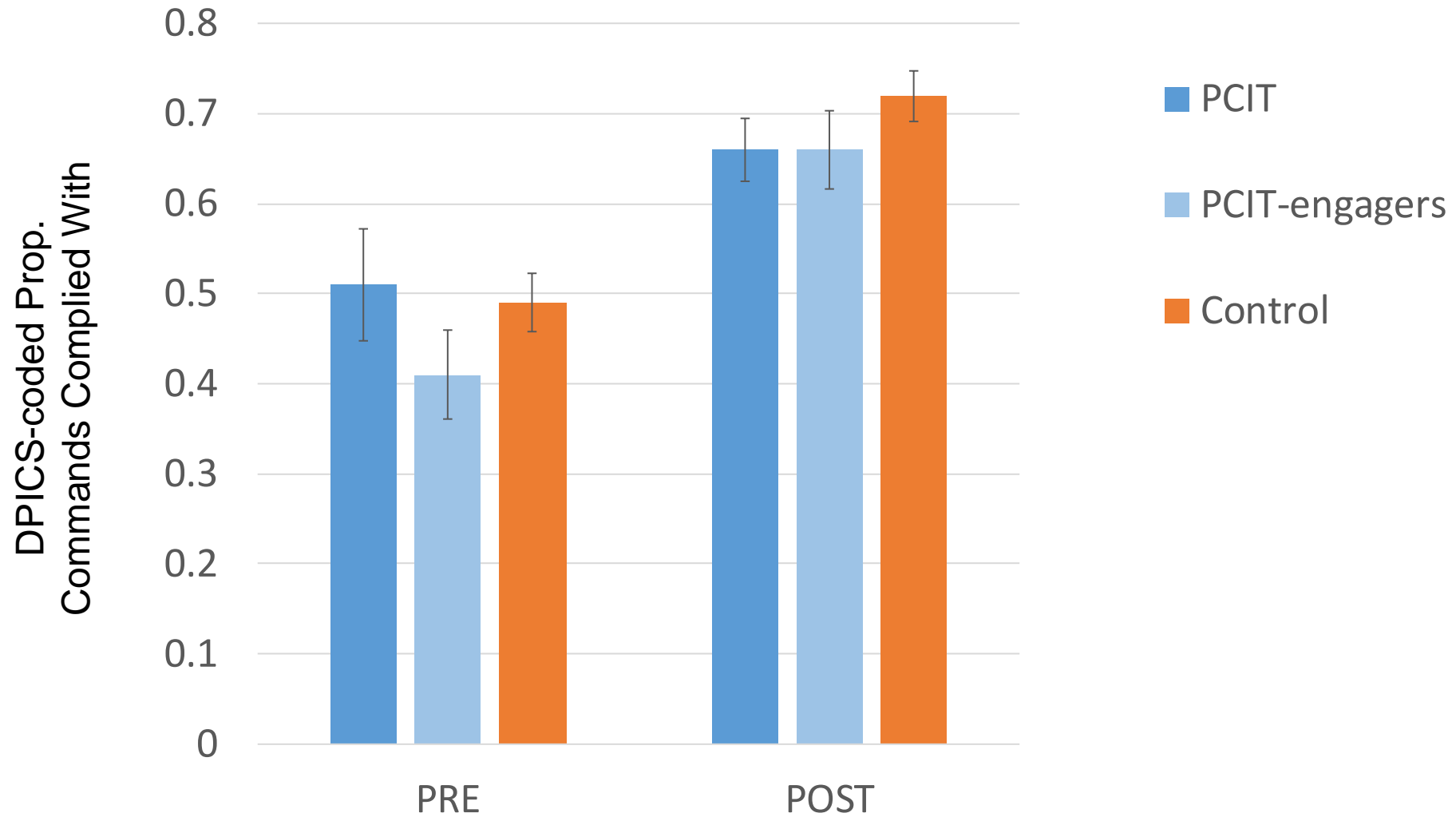
Disruptive Child Behavior: PCIT reduces ECBI Problem Scores in CW children



During Clean-Up: Doesn't change % effective parent commands



During Clean-Up: No main effects on child compliance



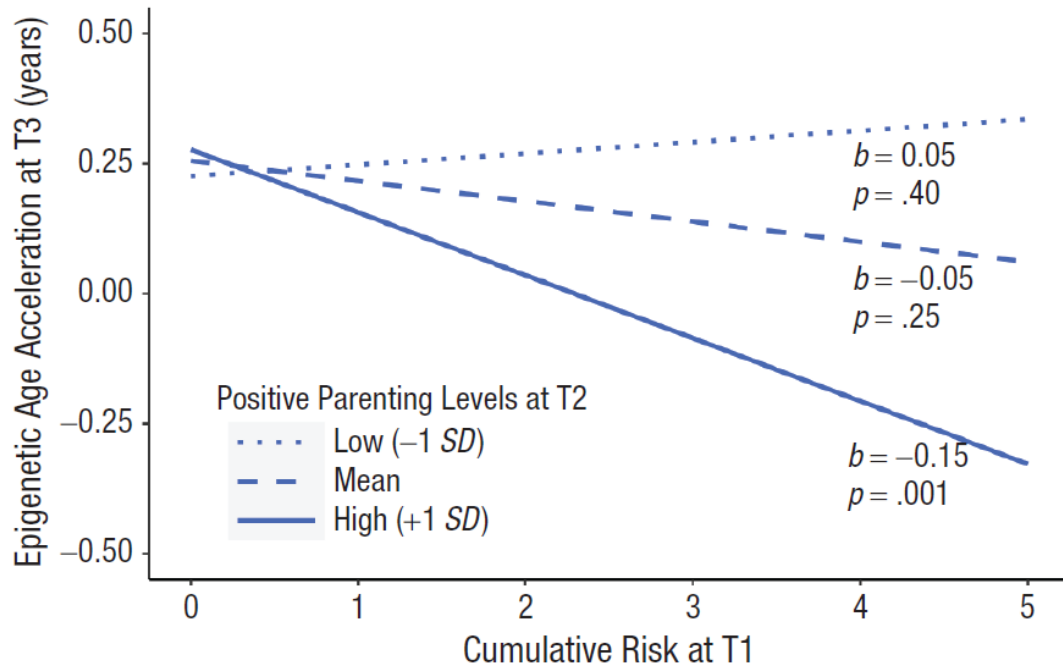


Fig. 1. Observed positive parenting at Time 2, adjusted for Time 1, moderates the relationship between cumulative risk at Time 1 and epigenetic age acceleration at Time 3.

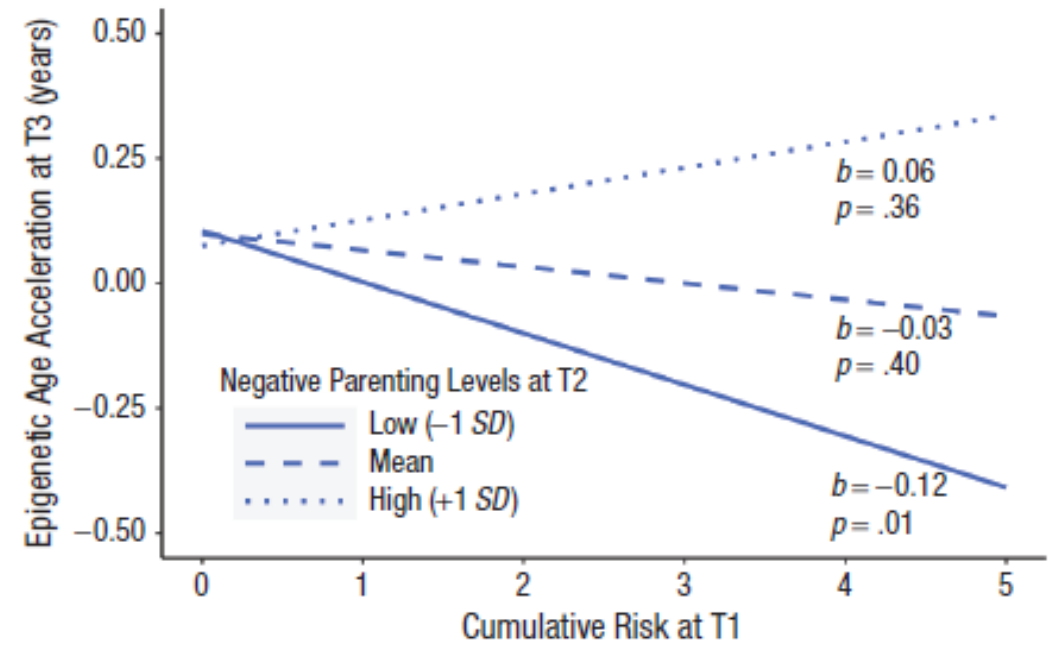
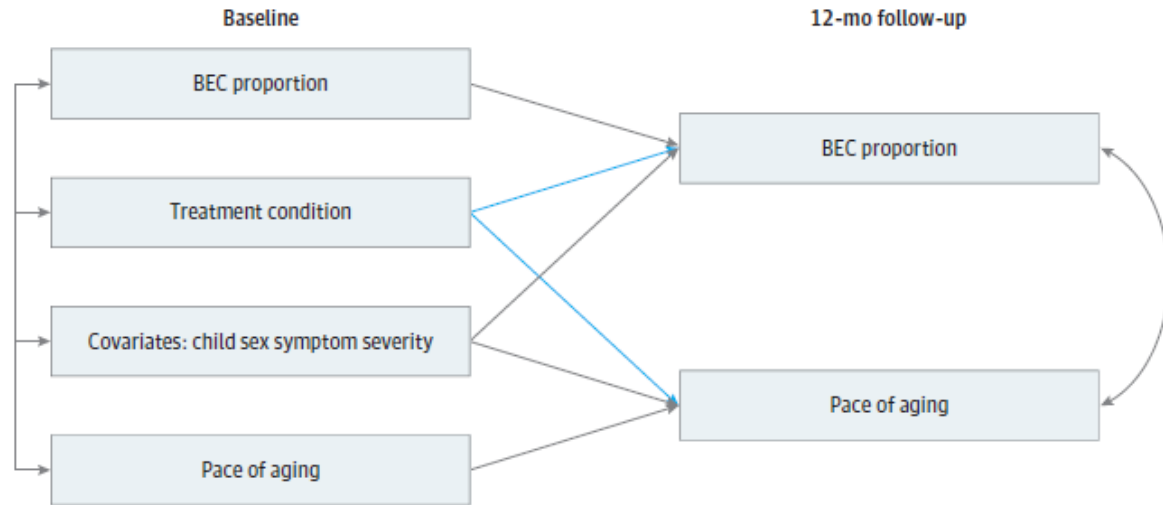


Fig. 2. Observed negative parenting at Time 2, adjusted for Time 1, moderates the relationship between cumulative risk at Time 1 and epigenetic age acceleration at Time 3.

Positive Parenting Gains → Child outcomes: Epigenetic aging_(PED-be)

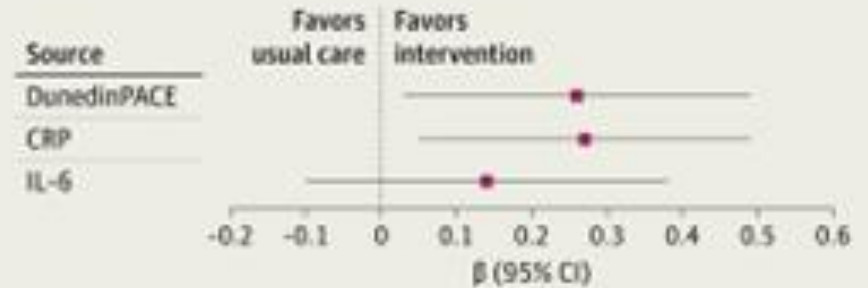
Sullivan, Bozack, Cardenas, Comer, Bagner, Forehand, & Parent (2023). Psychological Science

Figure. Path Models for Primary Outcomes and Cell Type



FINDINGS

The iPCIT group had a slower pace of aging and less DNAm-derived CRP relative to the control condition at the 12-month follow-up. There was no association with DNAm-derived IL-6 levels.



iPCIT group, pace of aging:
 $\beta = 0.26$; 95% CI, 0.06-0.50; $P = .03$
iPCIT group, CRP:
 $\beta = 0.27$; 95% CI, 0.05-0.49; $P = .01$

PCIT → Child Outcomes: Epigenetic aging & Inflammation

Merrill, Hogan, Bozack, Cardenas, Comer, Bagner, Highlander, & Parent (2024). *JAMA Network Open*



Who benefits more...and less from PCIT?

Individual differences → response to PCIT



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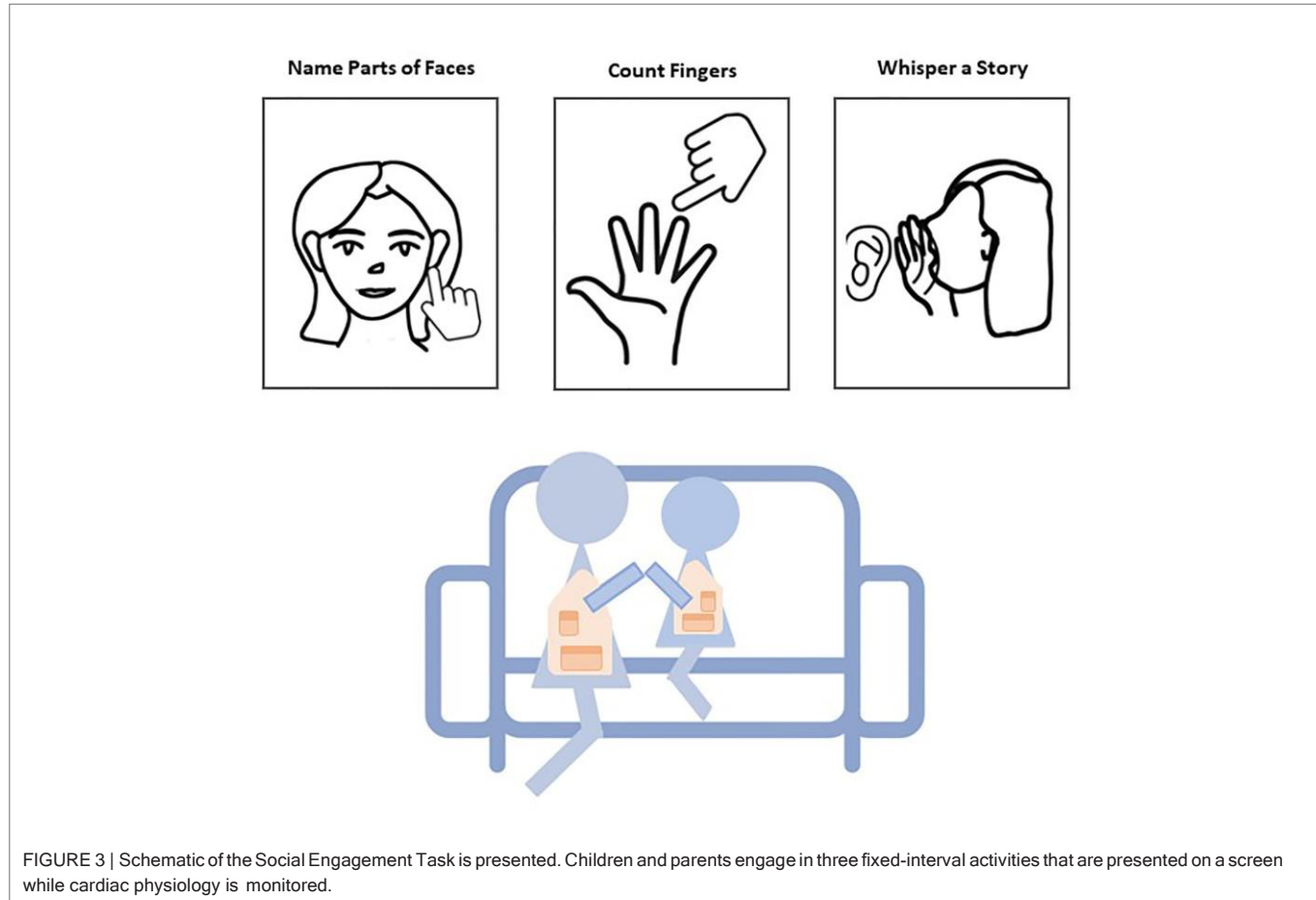


Differential Response: Engage & Persist in PCIT (child welfare families)

- CW parents who declined PCIT:
 - more negative parenting at intake
- Persistence in Child Directed Interaction Phase:
 - ***greater physiological calm (RSA) during social engagement task***
 - Less tendency to misinterpret neutral faces as angry
- Persistence in Parent Directed Interaction Phase:
 - ***physiological calm (greater RSA) during social engagement***
 - positive child attributions



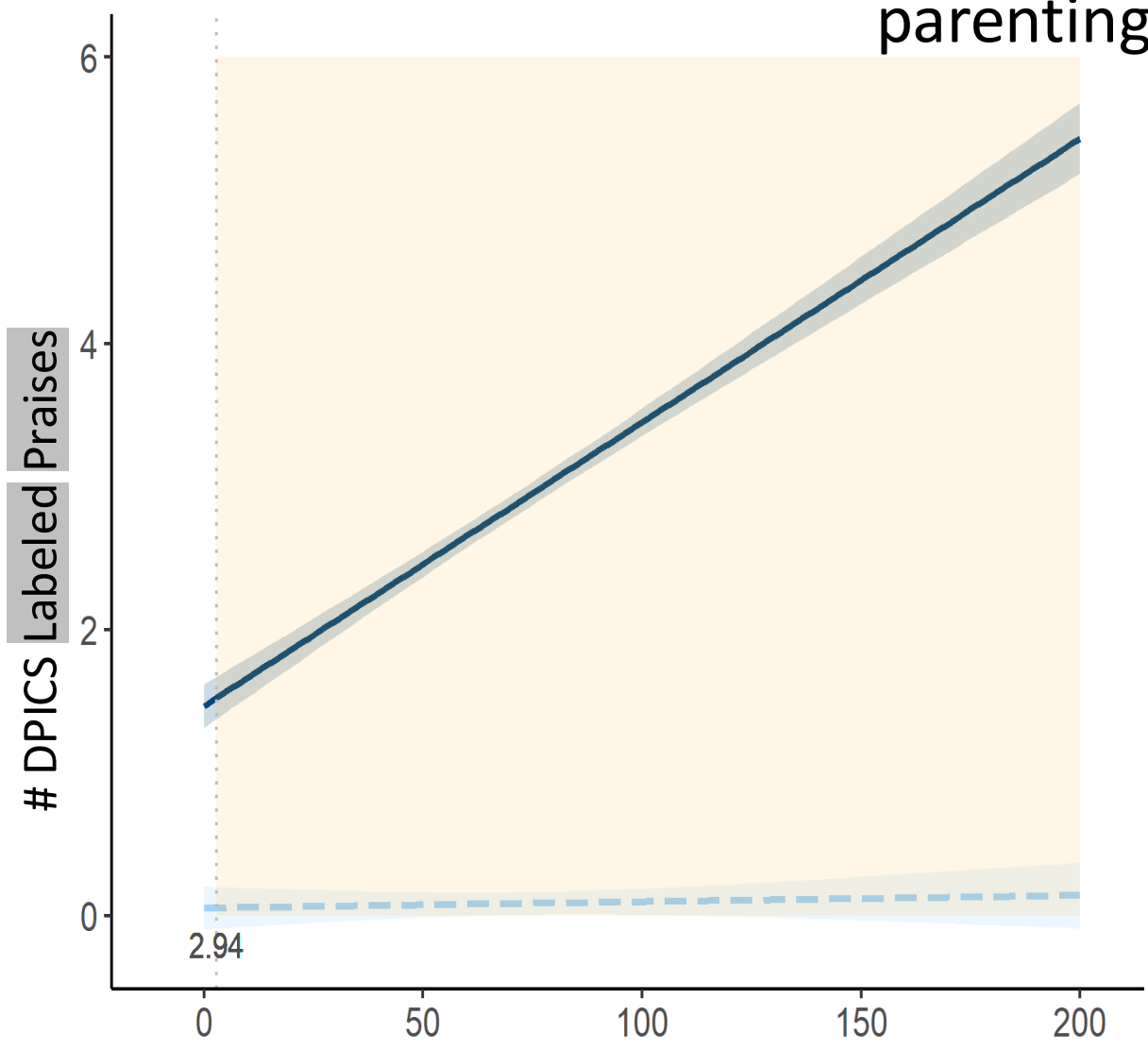
Social Engagement Task



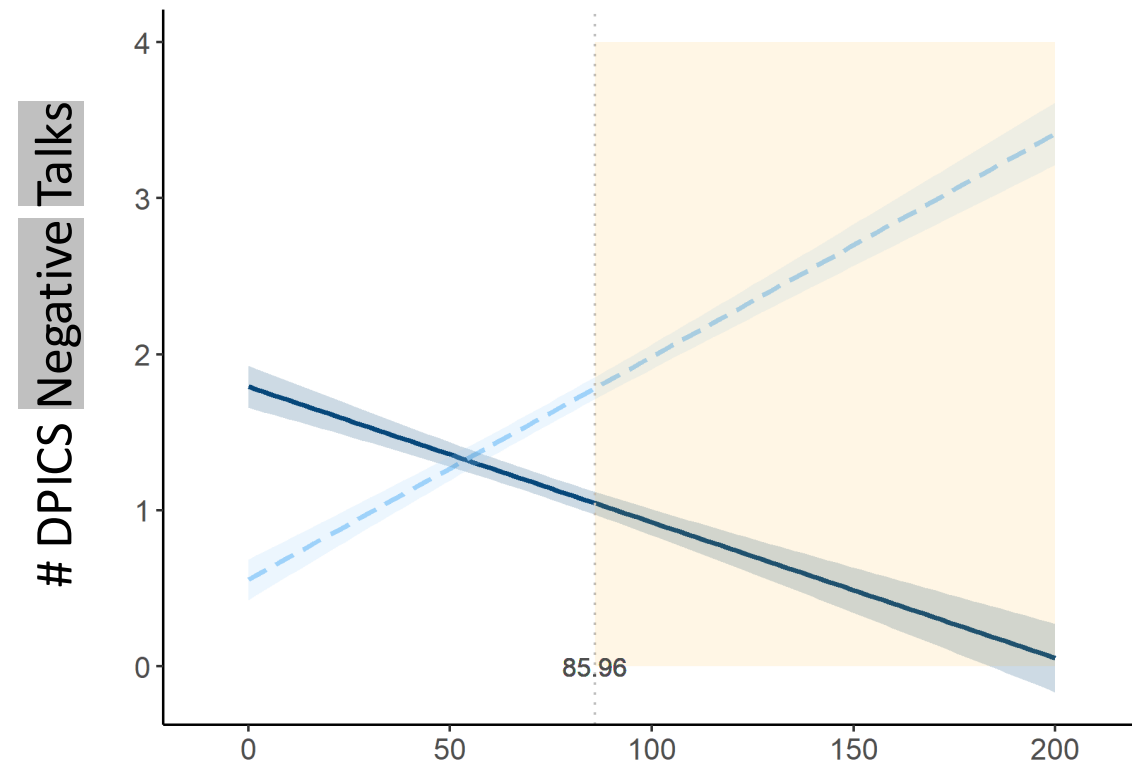
Differential response: Parents with harsh, negative child attributions benefit more from PCIT



parenting skills outcomes

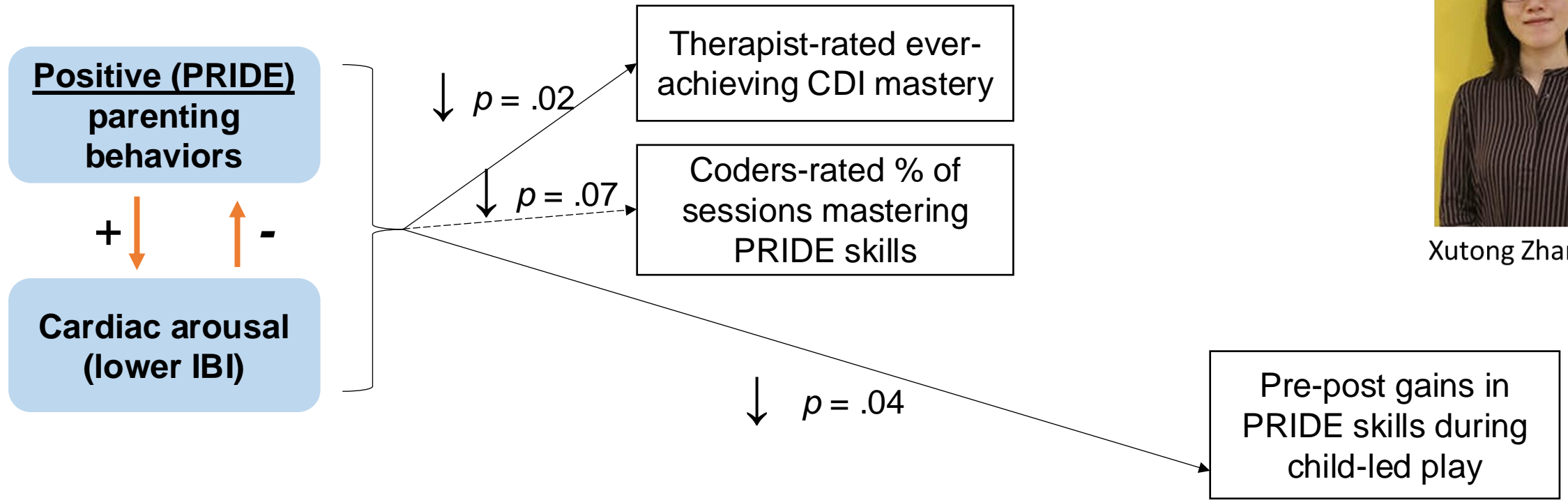


Group
— PCIT
- - Control



SASB: Harsh Child Attributions Scores

Dynamic associations between caregiver physiology & positive parenting at intake → Benefit Less from PCIT Intervention



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Pre-intervention assessment

Randomization Intake

CDI sessions

PDI sessions

Post-intervention assessment

Summary



Caregiving Risk...

- physiological arousal drives harsh, control parenting
- child trusting/relying (bids for support) drive physiological arousal in physically abusive mothers
- **mothers who achieve positive (behavioral) synchrony with their preschooler display more dynamic RSA response*
- maladaptive caregiving processes
 - parent ruptures & child repairs
 - unpredictable responding to positive/neutral child behavior (coercive process) & reinforcing negative child behavior

Benefits of Parent-Child Interaction Therapy (PCIT) for child welfare-involved families

- Parenting: behavior & self-regulation skills
- Children: behavior
- NO main EFFECTS: on caregiver or child physiology outcomes



Specificity of PCIT's effectiveness (i.e., moderators)

- Greatest parenting skills gains achieved by parents with harsh, negative child attributions
- Risk for drop-out ← caregiver physiological arousal during mutual positive caregiving interactions
- Maladaptive physio-behave coupling → limits parenting skills gains

Thank You

Funders

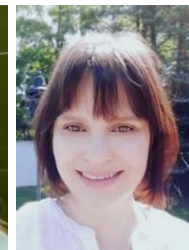
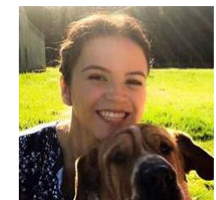
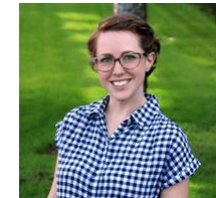
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Questions & Discussion



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