

TTAC

Perinatal and Early Childhood Mental Health Network

Training and Technical Assistance Center



Emotion Development in the Preschool Period: Risk and Prevention for Early Onset Psychopathology

Presented by
Joan Luby, MD

Director, Early Emotional Developmental Program
Samuel and Mae S. Ludwig Professor of Psychiatry (Child)

Who We Are

The New York City Perinatal and Early Childhood Mental Health Training and Technical Assistance Center (TTAC), is funded by the NYC Health Department.

TTAC is a partnership between the New York Center for Child Development (NYCCD) and the McSilver Institute for Poverty Policy and Research

- **New York Center for Child Development** has been a major provider of early childhood mental health services in New York with expertise in informing policy and supporting the field of Early Childhood Mental Health through training and direct practice
- **NYU McSilver Institute for Poverty Policy and Research** houses the Community and Managed Care Technical Assistance Centers (CTAC & MCTAC) and the Center for Workforce Excellence (CWE). These TA centers offer clinic, business, and system transformation supports statewide to all behavioral healthcare providers across NYS.

TTAC is tasked with building capacity and competencies of mental health professionals and early childhood professionals in family serving systems to identify and address the social-emotional needs of young children and their families.



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Emotion Development in the Preschool Period: Risk and Prevention for Early Onset Psychopathology

Joan L. Luby, M.D.

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Principles of Emotional Development

- Intrapyschic and interpersonal goals:
 - Maintain a healthy “intrapyschic” mental state.
 - Facilitate adaptive and meaningful interpersonal functioning.
- Multiple aspects
 - Emotional experience and expression
 - Emotion understanding (self and others)
 - Emotion regulation

Emotional Competence: Definition

1. Awareness of one's own emotional states.
2. Ability to identify the emotional states of others.
3. An ability to accurately verbally express one's own emotional states.
4. Capacity for empathic involvement in the emotional states of others.

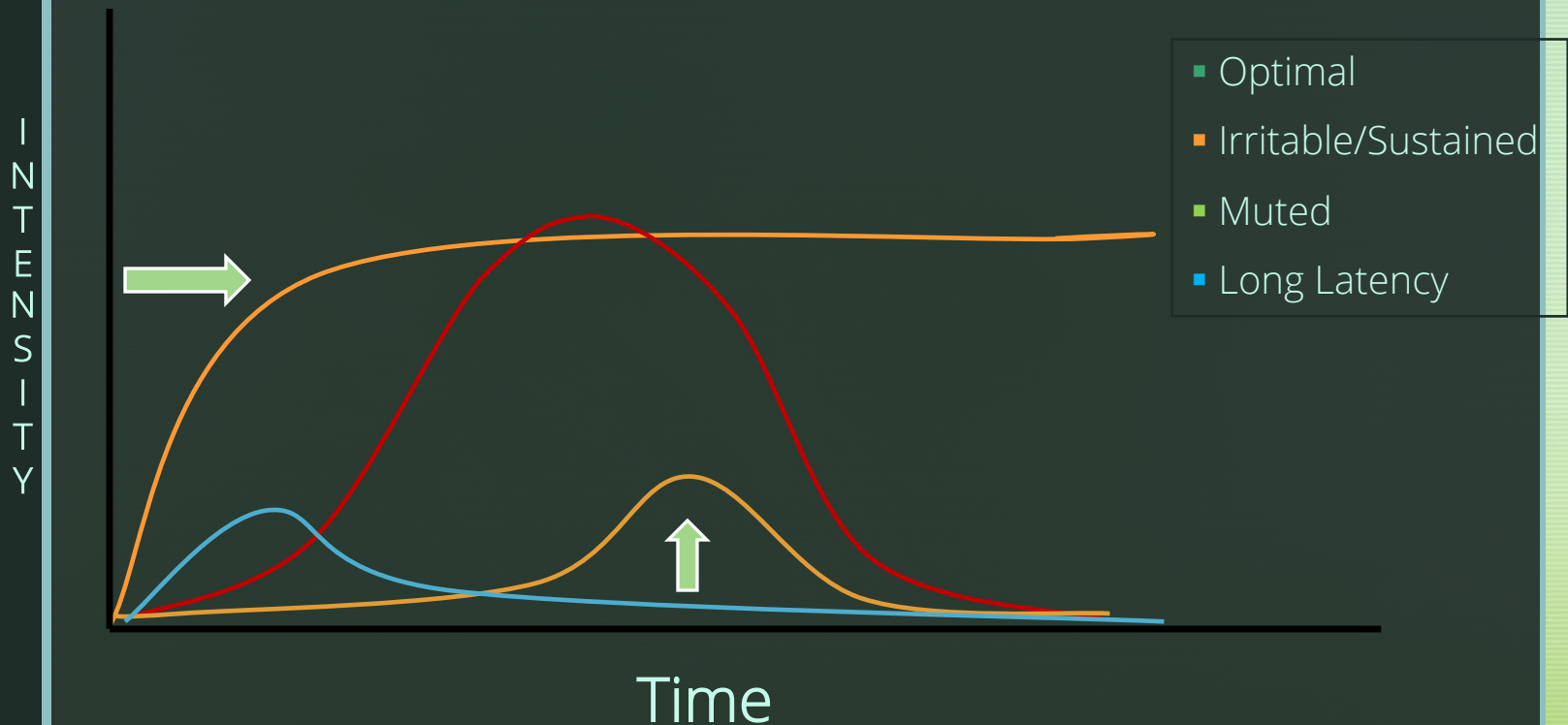
Emotional Competence: Definition

5. Ability to understand that inner experience may not correspond to outer expression of emotion.
6. Ability to label a substantial repertoire of emotions from facial expressions and gestures.
7. Awareness of cultural “display rules” of emotions.

Emotional Competence: Definition

8. Ability to understand and read individual differences in the expression of emotions.
9. Ability to understand how the expression of one's own emotions will impact others.
10. Capacity for coping adaptively with aversive or distressing emotions (emotional regulation).
11. Capacity for “emotional self-efficacy”.

Variations in Emotional Reactivity Curves



▸ **Determinants of Emotional Developmental Capacities**

- Influences of caregivers (modeling, teaching, scaffolding emotion regulation)
- Influences of life experiences (e.g., trauma, family climate)
- Temperament- constitutional internal characteristics of the child (e.g., inherent capacity to experience emotion and to regulate it)
 - Children with different temperaments have differential susceptibility of caregiving and life experience

Experience/expression

- The infant experiences a 3 innate emotions at birth: **distress, contentment, interest**
- 2-7 months: expression of 8 discrete emotions
 - **Disgust**- facial expression evident when tasting something foul
 - **Sadness**- facial expression evident in response to loss
 - **Anger**- evident in response to unmet need or interference with goal directed behavior
 - **Joy**- evident in response to pleasurable stimuli
 - **Surprise**- pop up toy etc.
 - **Fear**- more differentiated-stranger fear, novelty fear

Development of Empathy

- **Empathy** is a response elicited by observing or imagining another's emotional state or condition that involves the apprehension of their emotional state (**cognitive empathy**) and experience of emotions that are similar to what the other person is feeling (**affective empathy**)
- **Empathy** is an individual emotion that depends on a child's ability to understand the emotion of another
- Affective empathy in infancy: Infants respond to other infants' distress with contagious crying- suggests a biological predisposition for empathy that manifests in self-distress (Dondi et. al, 1999)
- By 6 months: Infants rarely respond with self-distress – instead they look at/contact distressed peers and display other-oriented affective empathy (Roth-Hanaia et. al, 2011)

Development of Empathy

- By toddlerhood, children frequently display emotional reactions indicative of empathy, such as facial, vocal and postural expressions of concern for victims as well as concerned awareness of the victim (e.g., stopping activity and staring at the distressed, Spinrad & Stifter, 2006).
- Cognitive empathy emerges later than affective empathy, as it depends on perspective-taking skills
- Empathy continues to increase with age throughout childhood, aided by developments of children's perspective taking skills, theory of mind, and understanding of increasingly complex emotions (Eisenberg & Eggum, 2008; Eisenberg & Fabes, 1998).

Experience of self-conscious emotions

- **Pride** – positive emotion evoked when an individual perceives he/she has achieved a socially valued outcome or is valued as a person
- **Guilt** – negative evaluation of a **specific behavior** following a transgression/wrongdoing
 - Adaptive
 - Maladaptive
- **Shame** – negative evaluation of the **self** for committing a specific transgression

Experience of Self-conscious Emotions

- Cognitive pre-requisites
 - Capacity for self-awareness (18-24 months; Lewis, 2000)
 - Formation of stable self-representations (18-24 months; Lewis, 1989)
 - Awareness of rules & standards that define socially appropriate behavior (21 months; e.g., Sloane et. al, 2012)
- **Guilt & shame** – age 2 (Drummond et. al, 2017; Kochanska et. al, 2002)
- **Pride** – age 3 (Tracy et. al, 2005)

Emotion regulation

- **Emotion regulation:** skills, and strategies, whether conscious or unconscious, automatic or effortful, that serve to modulate, inhibit, and enhance emotional experiences and expressions (Calkins 2004).
- Infancy: Infants are dysregulated and there is individual variation in terms of their reactivity and ability to self-soothe.
- Capacity develops over the first years of life and has particular importance to developing adaptive social behavior during preschool (Calkins, 2010)
- Overall considered critical achievement of early childhood (Bronson, 2000)

Emotion Regulation Determinants:

- Individual differences in internal capacities that predict social competence and psychopathology
- Psychosocial determinants
 - Expressed emotion of caregiver
 - Caregiver's ability to externally regulate
 - Caregiver's ability to scaffold child's emotion regulation or explicitly teach strategies
 - Caregiving environment
 - Exposure to stress/trauma etc.

Emotion Understanding

- Emotion understanding refers to a range of related skills, including:
 - Awareness of one's own emotions
 - Discernment of other's emotions
 - Knowledge of the causes and consequences of emotions
 - Recognition of one's own role in other's emotional experiences
- Emotion understanding abilities have been linked to children's academic success (Denham et. al, 2012), social competence (Denham et. al, 2003) and behavior regulation (Denham et. al, 2002)

Emotion Understanding

- Infancy: inability to understand their own emotions or to read the emotions of others.
- Infants can detect differences in different emotional expression of others by 4-7 months
- At 7 months infants begin to see emotions as meaningful (based on attentional experiments)
- At 8-12 months infants use facial expressions/tones to inform behavior or social decisions (social referencing)
- 3 years: accurate labeling of a few discrete emotions from facial expressions (positive emotion labeling evident before negative)
- 5-6 years: children can provide antecedents of emotions

Understanding Simultaneous or Ambivalent Emotions

- During the preschool period children do not tend to understand that multiple conflicting feelings can occur at the same time.
- Between the ages of 5-7 children can begin to express that they feel two similarly valenced emotions at the same time (happy and excited).
- At school age children can express that they experience different emotions from different sources.
- By age of 10 (approx.) children begin to be able to express that they can experience positive and negative emotions at the same time.

Optimal Emotional Maturity

- Ability to experience a broad range of specific positive and negative emotions
- Ability to experience emotional “peaks” and sufficient intensity of emotions (under-reactive or over-reactive are maladaptive)
 - Anhedonia; emotion dysregulation
- Ability to experience these intense emotions for a reasonable duration and then return to a euthymic baseline.
- Ability to accurately recognize your own emotional state and accurately read the emotional states of others.
- Ability to use information about your own and others’ emotions to carry out goal directed behavior and social behavior.

Mapping Emotion Development onto Risk for Mental Disorders

- Conceptualizing some mental disorders as alterations in emotion development
- This give us a tangible prevention target
- It helps to understand psychopathology from a developmental perspective.
- This also helps to de-stigmatize them

Preschool Depression Criteria

- Meets all DSM criteria EXCEPT:
 - 2-week duration criterion is “set aside”
 - Can have 4 instead of 5 core symptoms
 - Symptom assessments are adjusted for their age-appropriate manifestations.

▸ **Clinical Characteristics of Preschool Depression**

- Depressed preschoolers display “typical” symptoms and vegetative signs of MDD predominantly.
- Depressed preschoolers show high levels of guilt, anhedonia, extreme fatigue, sad/tearful and death thoughts/play.
- Depressed preschoolers are having difficulty functioning in many setting and meet age expected challenges (according to parents and daycare/preschool teachers).



No one wants to play with me.

I wish I was never born.

Nothing is fun.

I'm a bad kid.

I feel so bad I broke my sister's toy.

Review of Validity of Preschool MDD

- Data from at least 5 independent samples support the validity of preschool MDD

(e.g., Luby et al., 2003, Luby et al., 2009, Klein et al., 2012, Egger and Angold, 2006, Wichstrom 2016).

- Biological markers, familial transmission, and observational evidence provided (Luby et al., 2003, Luby et al., 2002, Luby et al., 2006)
- Alterations in neural function and structure (Barch et al., 2012, Gaffrey et al., 2017, Luby et al., 2015, Belden et al., 2016 etc.)
- Evidence of impairment in multiple settings (Luby et al., 2009)
- Preschool MDD detected in epi samples in US and EU with prevalence rate of 1-2%

(USA: Lavigne et al., 1996, Egger and Angold, 2006, Norway: Wichstrom et al., 2012, Bufferd et al., 2012)

▶ **PO-MDD Misconceptions**

- Not a result of early trauma (many depressed preschoolers do not experience adversity or trauma)
- Likely an inherited biological disorder
- Risk is based on genetic liability and environmental stressors
- Many depressed children come from supportive and economically advantaged environments

▲ **Clinical/Public Health Implications**

- Preschool MDD does not spontaneously remit—it is not just a stage kids grow out of-- therefore requires clinical attention.
- Preschool MDD is not a non-specific precursor of later more general psychopathology therefore it requires specific intervention.
- Preschool MDD has numerous features similar to the school age form—therefore appears to be the same disorder with earlier onset.

Can Preschoolers Be Depressed?



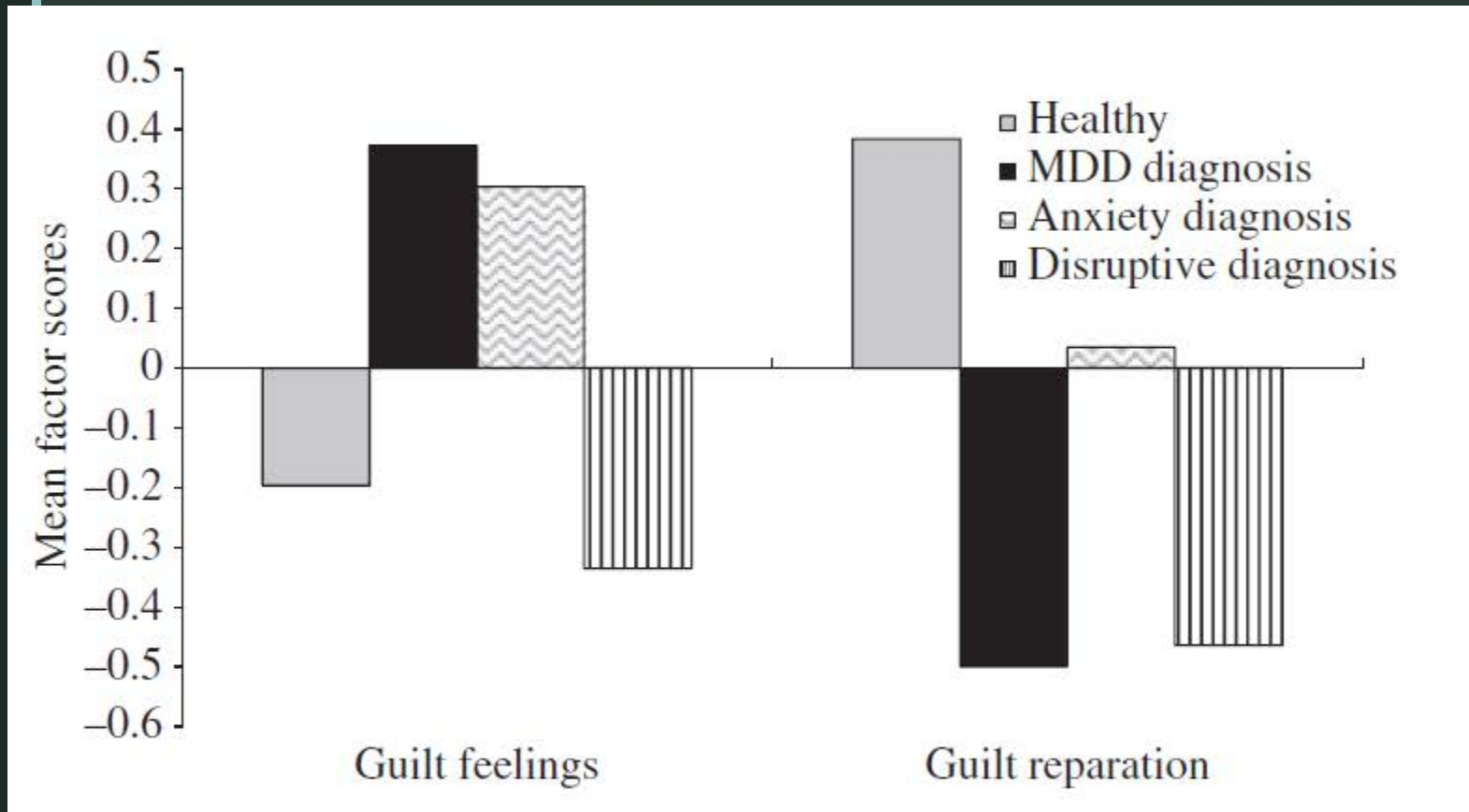
Photo Illustration by Dwight Eschliman. Set Design by Hiroshi Yoshida.

By PAMELA PAUL
Published: August 25, 2010

Kiran didn't seem like the type of kid parents should worry about.

Paul, P. New
York Times
Magazine,
August 25,
2010

Guilt and Guilt Reparation and Preschool Diagnoses:



Development of maladaptive guilt and shame

- Maladaptive guilt
- Associated with family conflict, parental depression, low socioeconomic status, and low parental involvement (Donohue et. al, 2023)
- Maladaptive guilt in preschool predicted reduced anterior insula volumes in middle childhood, which in turn predicted depression recurrence (Belden et. al, 2015)
- In preschoolers, is associated with thinner dmPFC compared to depressed preschoolers without this symptoms (Donohue et. al, under review)

Clinical Implications

- Preschoolers are vulnerable to developing maladaptive guilt and shame when these emotions are developing
 - Perhaps particularly inappropriate guilt cognitions due to difficulty with self-other differentiation
 - Particularly in certain environmental contexts
- Maladaptive guilt and shame associated with poor social functioning, nearly every psychiatric disorder – implications of disrupted development are great
- Need to assess children's attributions of blame for negative events
- Intervention during periods of relatively greater neuroplasticity

▸ Treatment of Childhood MDD

- Psychotherapies most widely studied treatment modalities to date.
- Cognitive Behavioral Treatment
- Interpersonal Psychotherapy
- SSRI anti-depressants (Emslie et al., 1997)

Effectiveness of Psychotherapy for Childhood MDD:

- Meta-analysis pooled results from 35 psychotherapy studies of child and adolescent MDD
- Mean effect size across studies was 0.34 (SD=0.40 range - 0.66 to 2.02)
- Effect size small
- Sobering news for psychotherapy for childhood MDD—this area lags behind others.

▲ **Efficacy of Early Intervention in Mental Disorders:**

- Early intervention in Autistic Spectrum Disorders (Numerous variations of ABA)
- Early intervention in disruptive disorders (PCIT, Wonder Years etc.)
- Early intervention in Anxiety disorders promising from small scale studies (CBT for PTSD, PCIT etc.)

▸ **Treatment for PO-MDD: Why and How?**

- MDD detected as early as age 3
- Alterations in structure/function of brain emotion processing regions in PO-MDD acutely and children with hx of PO-MDD
- Genetic and psychosocial factors known in the risk trajectory of MDD
- Psychosocial factors influence brain development
- Early psychosocial interventions focused on emotion development may be very important in PO-MDD

Overview of PCIT-ED:

- Child Direction Interaction (CDI)
 - Parent Directed Interaction (PDI)
 - Emotion Development (ED)
-
- Live coaching through a “bug in the ear” guiding the parent how to intervene in real time in session.
 - Weekly homework
 - Emotionally evocative events in vivo

PCIT-ED: Modification/Expansion of a Validated Tx for Preschoolers:

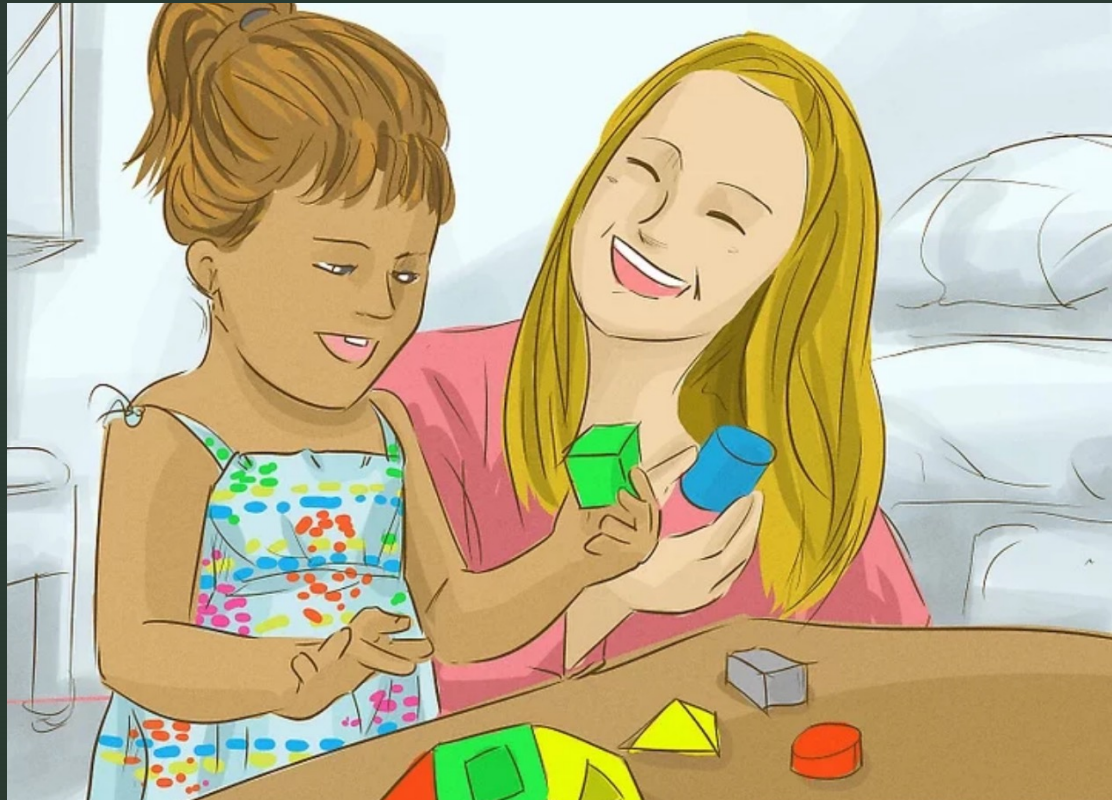
- Child Direction Interaction (CDI)
- Parent Directed Interaction (PDI)
- Emotion Development (ED)
- In vivo coaching through a “bug in the ear”
- Caregiver serves as “arm of the therapist”
- Emotionally evocative events in vivo



Child Directed Interaction (CDI)

- Designed to improve the parent-child relationship
- Teaches parent play therapy skills to enhance their ability to positively engage with their child
- Uses a ‘teach/coach’ structure

Child Directed Intervention



Non-contingent interest and validation

Parent Directed Interaction (PDI)

- Designed to help parents manage non compliance and other behavior problems
- Teaches a safe, consistent and predictable disciplinary technique using a time out chair procedure.
- Uses a ‘teach/coach’ structure

Parent Directed Intervention



Setting firm and nurturing limits—establishing authority

Parent-Child Interaction Therapy - Emotion Development:

- Combines principles and techniques employed in PCIT (bug in the ear/parenting style/homework)
- Addresses problems in patterns of emotional reactivity
- Focuses on parent's role as emotion regulator for their child
- Uses emotionally evocative tasks in the session
- Focuses on helping young children to develop emotionally

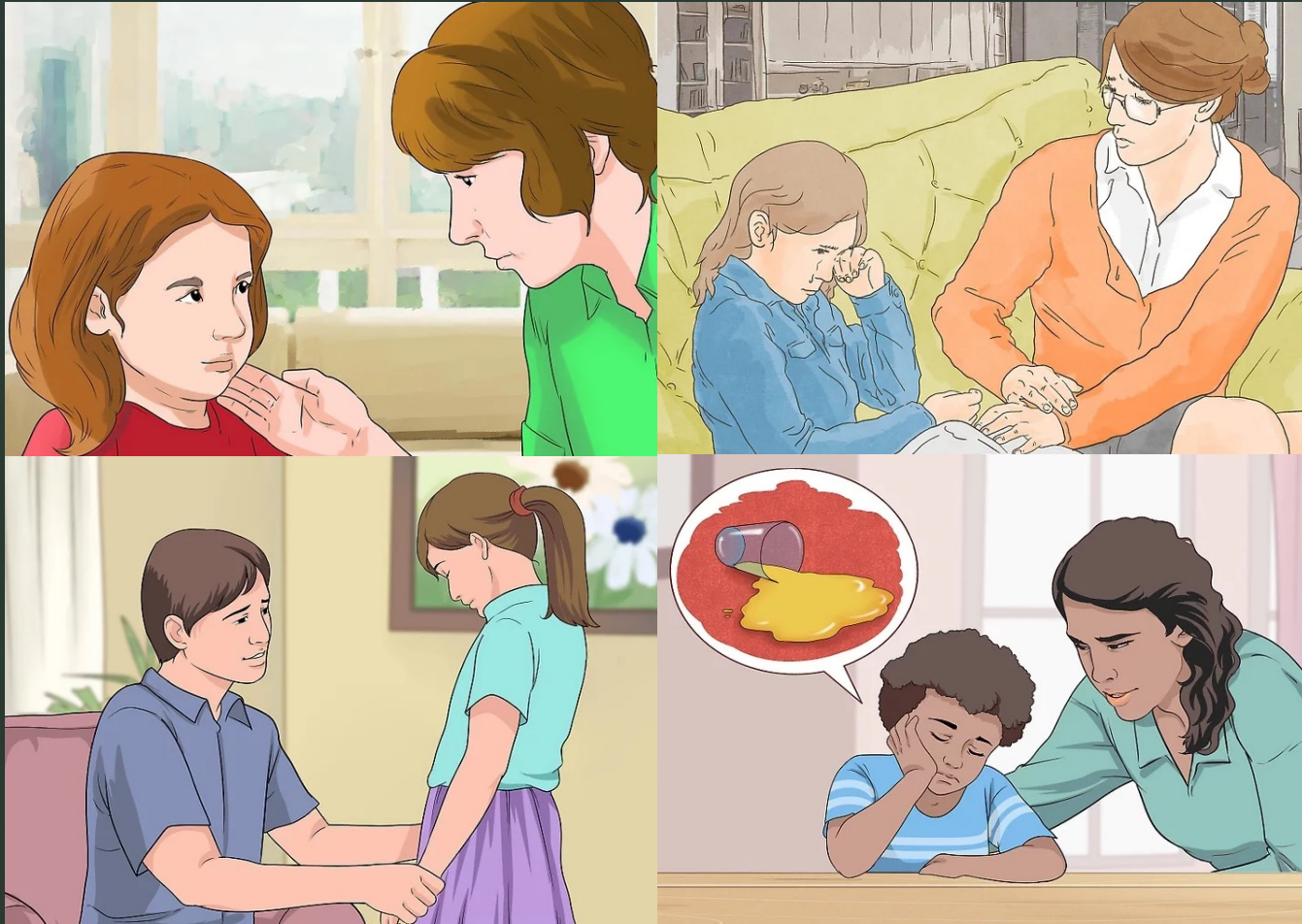
Emotion Development Treatment Targets:

- Learn to accurately identify and label a broad range of emotions in self and others.
- Learn adaptive strategies to deal with guilt and utilize proactive reparation.
- Learn to regulate intense emotions by utilizing cognitive control strategies and relaxation strategies.
- Learn to focus on positive events and sustain positive emotions.

Emotion Development Module

- Evocative events in vivo during live coaching
- Parent taught to tolerate child's expression of intense emotion (positive and negative)
- Parent taught to validate child's emotion before attempting to "fix" or regulate
- Parent helps child to accurately identify and label emotions in self and others

Enhancing Emotion Development



A Randomized Controlled Trial of Parent-Child Psychotherapy Targeting Emotion Development for Early Childhood Depression

Joan L. Luby, M.D., Deanna M. Barch, Ph.D., Diana Whalen, Ph.D., Rebecca Tillman, M.S., Kenneth E. Freedland, Ph.D.

Objective: Clinical depression in children as young as age 3 has been validated, and prevalence rates are similar to the school-age disorder. Homotypic continuity between early and later childhood depression has been observed, with alterations in brain function and structure similar to those reported in depressed adults. These findings highlight the importance of identifying and treating depression as early as developmentally possible, given the relative treatment resistance and small effect sizes for treatments later in life. The authors conducted a randomized controlled trial of a dyadic parent-child psychotherapy for early childhood depression that focuses on enhancing the child's emotional competence and emotion regulation.

Method: A modified version of the empirically tested parent-child interaction therapy with a novel "emotion development" module (PCIT-ED) was compared with a waiting list condition in a randomized controlled trial in 229 parent-child dyads with children 3–6.11 years of age. Both study arms lasted 18 weeks.

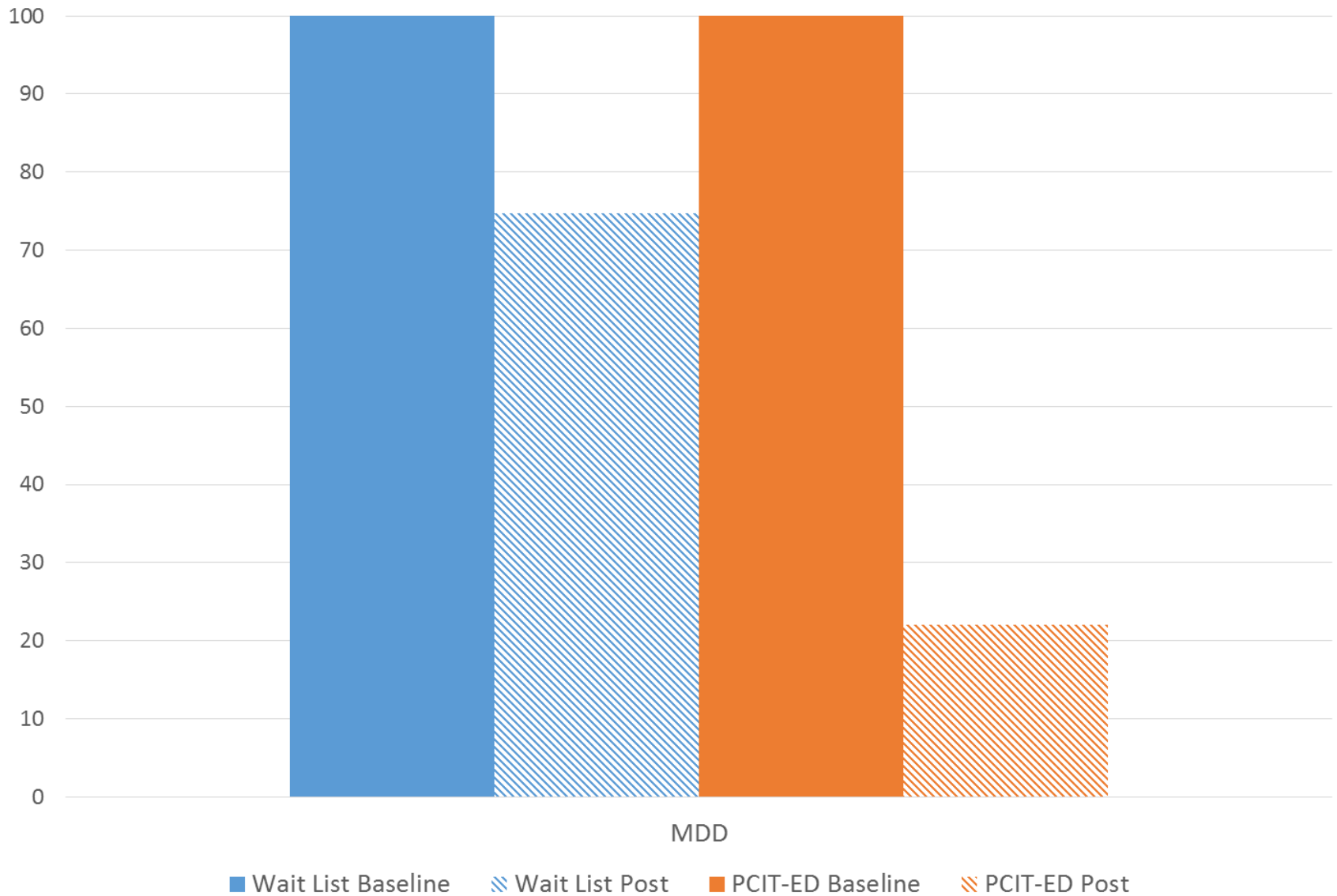
Results: Children in the PCIT-ED group had lower rates of depression (primary outcome), lower depression severity, and lower impairment compared with those in the waiting list condition (Cohen's d values, >1.0). Measures of child emotional functioning and parenting stress and depression were significantly improved in the PCIT-ED group.

Conclusions: The findings from this randomized controlled trial of a parent-child psychotherapy for early childhood depression suggest that earlier identification and intervention in this chronic and relapsing disorder represents a key new pathway for more effective treatment. Manualized PCIT-ED, administered by master's-level clinicians, is feasible for delivery in community health settings.

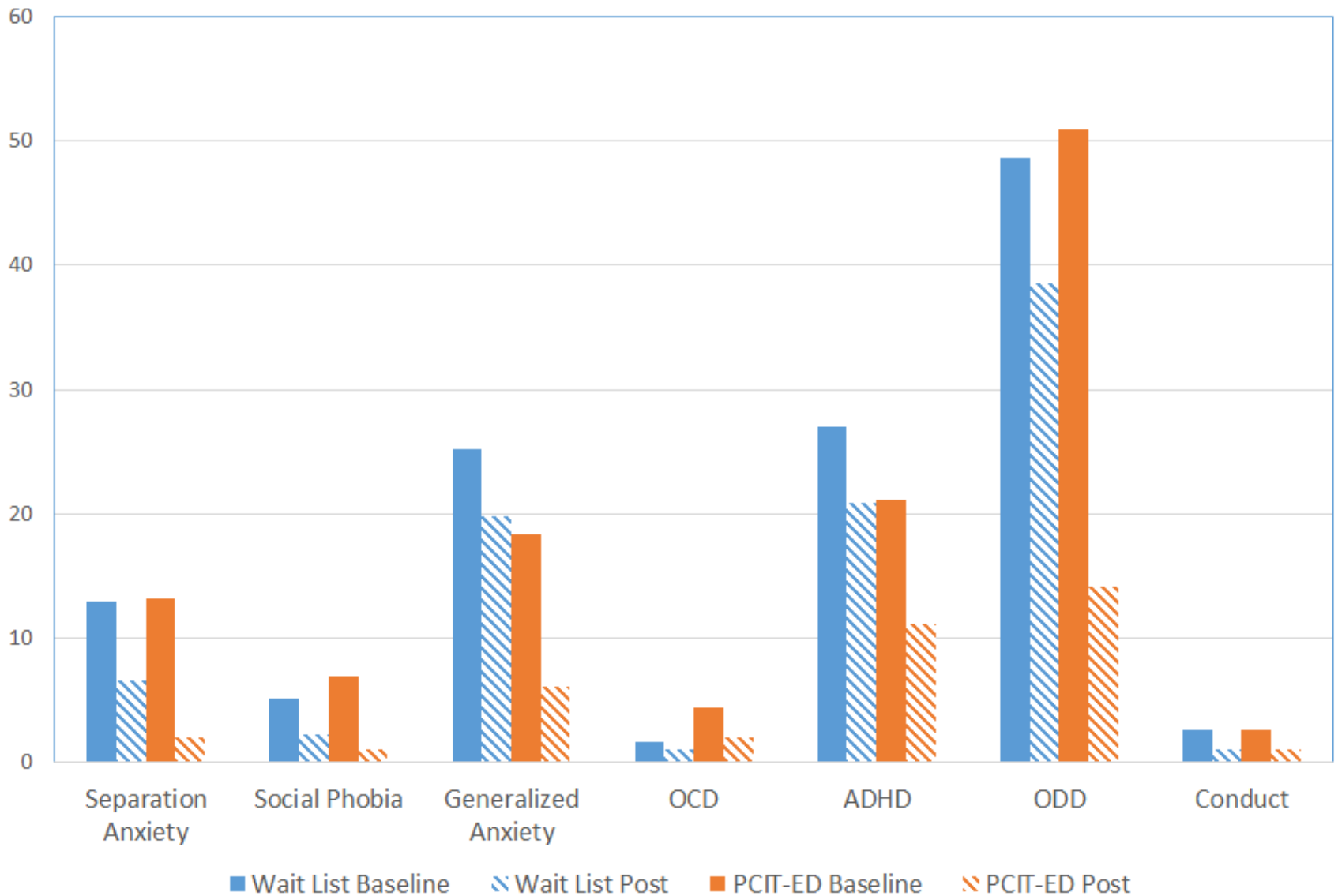
AJP in Advance (doi: 10.1176/appi.ajp.2018.18030321)



PCIT-ED vs. Wait List Subjects: Primary Measures at Baseline and Post



PCIT-ED vs. Wait List Subjects: Comorbidities at Baseline and Post



HBQ-P Global Peer Relations

CDI (BL to A)
Wait List vs. PCITED

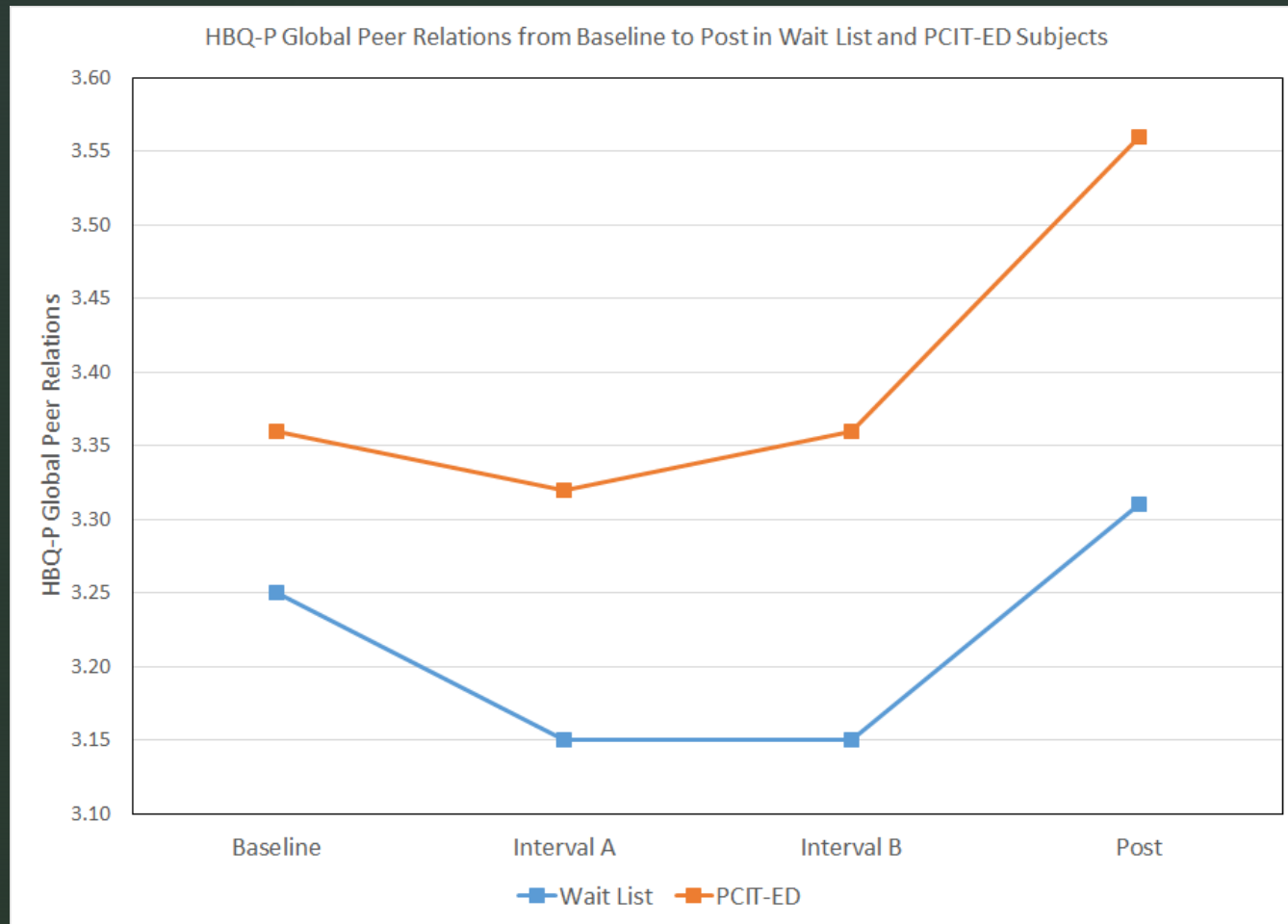
t	p	Cohen's d
-1.59	0.1136	-0.23

PDI (A to B)
Wait List vs. PCITED

t	p	Cohen's d
-0.00	0.9989	0.00

ED (B to Post)
Wait List vs. PCITED

t	p	Cohen's d
-0.70	0.4875	-0.10



HBQ-P Peer Acceptance or Rejection

CDI (BL to A)
Wait List vs. PCITED

t	p	Cohen's d
-0.97	0.3324	-0.14

PDI (A to B)
Wait List vs. PCITED

t	p	Cohen's d
-1.11	0.2668	-0.17

ED (B to Post)
Wait List vs. PCITED

t	p	Cohen's d
-0.41	0.6830	-0.06



Post Assessment Emotion, Cognitive, and Executive Characteristics

(Covarying for Baseline Characteristics, Gender, and Baseline Externalizing Disorder)

	Wait List (N=91)		PCIT-ED (N=99)		Wait List vs. PCIT-ED				
Emotion Regulation	Mean	SD	Mean	SD	t	p	FDR p	Partial η^2	Cohen's d
Lability/negativity	37.24	7.56	29.20	6.40	9.83	<0.0001	<0.0001	0.34	1.21
Emotion regulation	24.13	3.25	26.41	3.50	-5.36	<0.0001	<0.0001	0.13	0.69

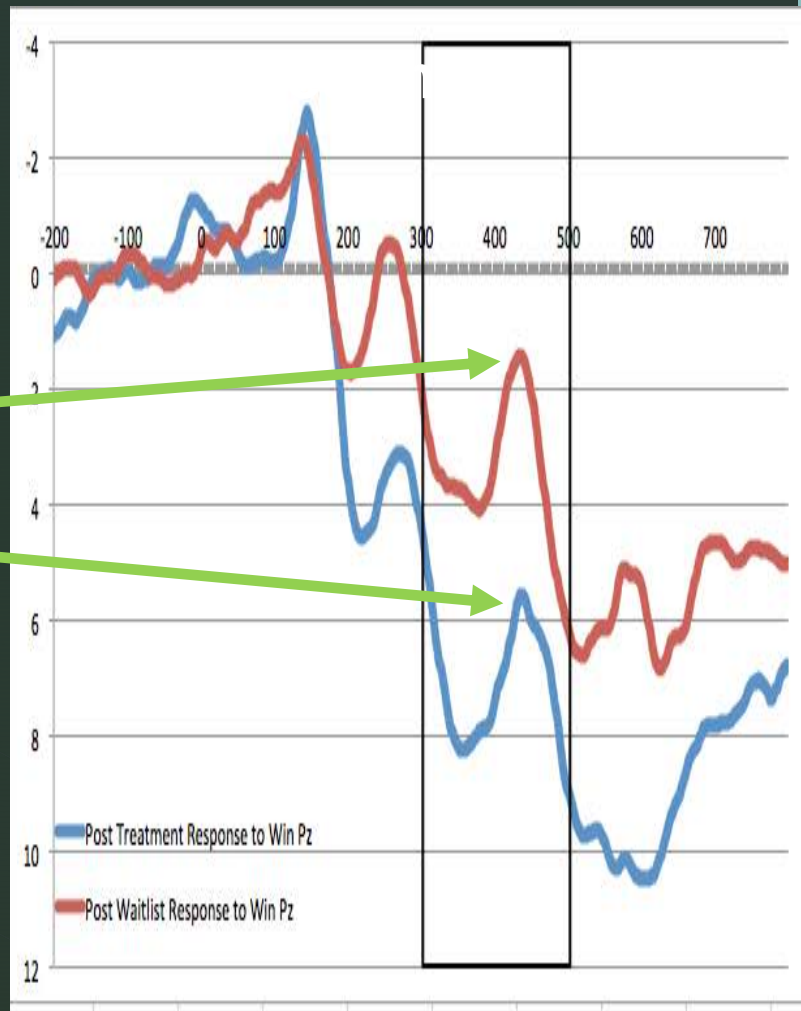
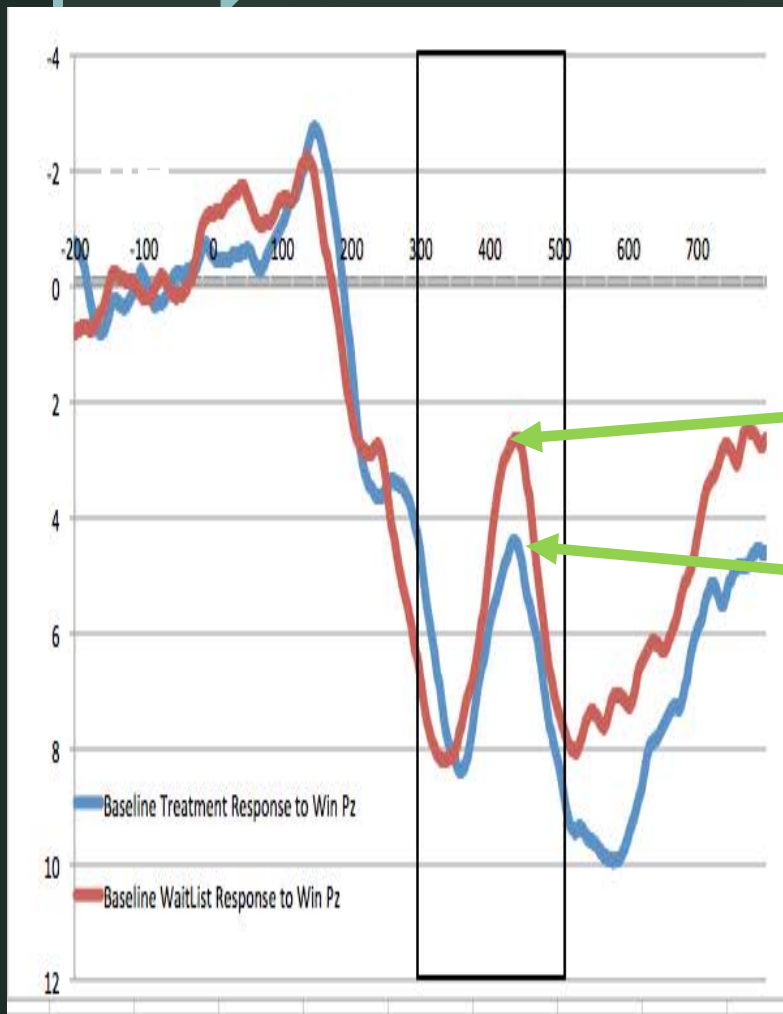
	Wait List (N=90)		PCIT-ED (N=99)		Wait List vs. PCIT-ED				
My Child (measure of guilt)	Mean	SD	Mean	SD	t	p	FDR p	Partial η^2	Cohen's d
Guilt reparation	24.66	5.03	27.39	5.26	-5.13	<0.0001	<0.0001	0.13	0.70
Guilt feelings	17.91	2.79	17.46	2.52	0.70	0.4867	0.4867	0.00	0.02

Cohen's d is for the change from baseline to post; FDR = false discovery rate

Post Characteristics* Covarying for Baseline MDD, Gender, and Externalizing Disorder (Intent to Treat Analysis)

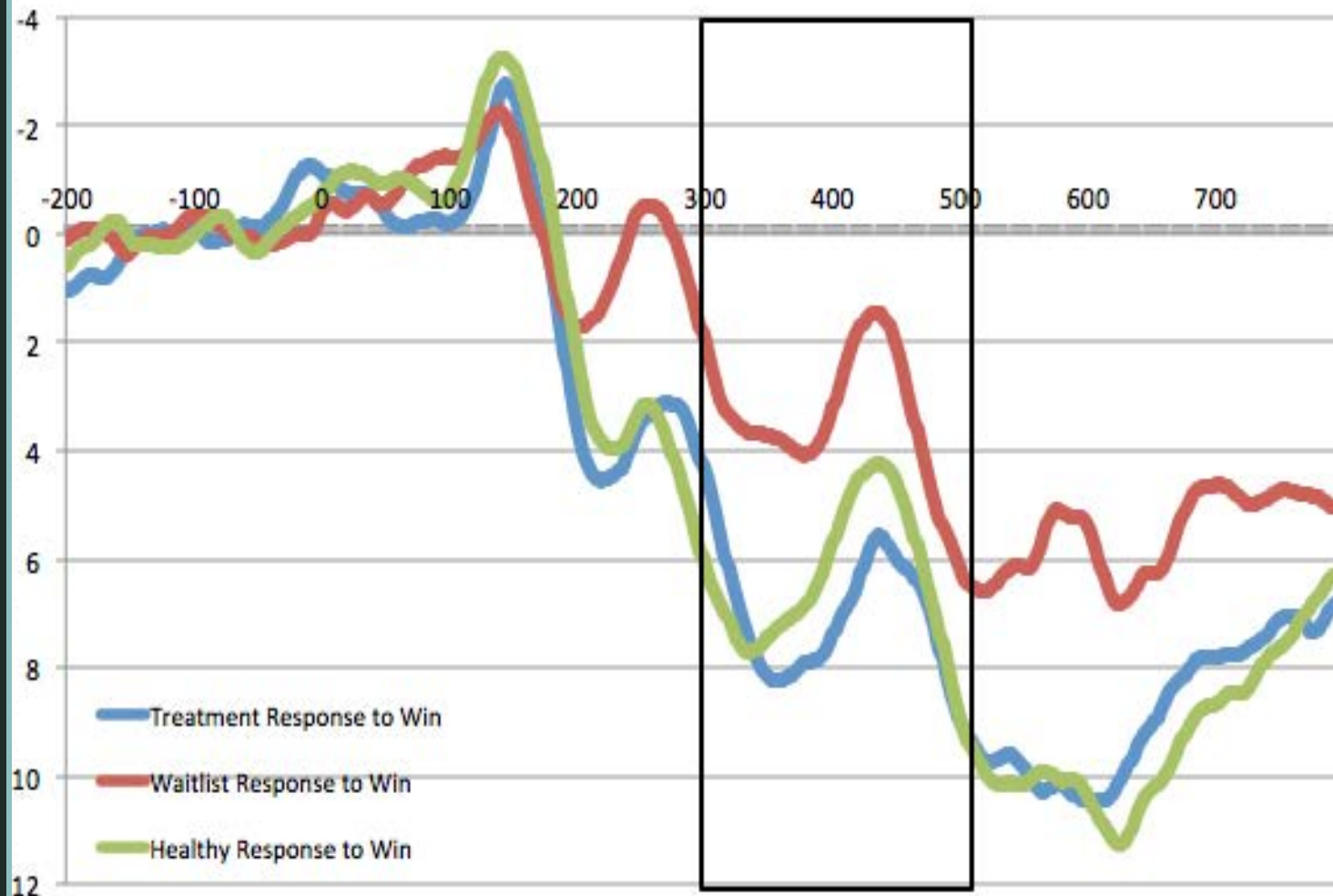
Primary Outcome	Wait List vs. PCIT-ED					
	Estimate	SE	t	p	FDR p	OR (95% CI)
Major Depressive Disorder (or NOS)	1.20	0.18	6.60	<0.0001	<0.0001	9.52 (8.44, 10.74)
Secondary Outcomes	Estimate	SE	t	p	FDR p	Cohen's d
MDD core score	2.34	0.26	9.11	<0.0001	<0.0001	1.01
PFC-Scale score	11.91	1.29	9.26	<0.0001	<0.0001	1.04
CGAS score	-20.49	2.31	-8.87	<0.0001	<0.0001	1.16
PECFAS/CAFAS score / N subscales	3.19	0.46	6.91	<0.0001	<0.0001	0.78
BDI-II score	2.04	0.76	2.68	0.0074	0.0074	0.24

*Missing post data was imputed using multiple imputation; Cohen's d is for the change from baseline to post averaged across 25 imputed datasets; OR = odds ratio combining data from 25 imputed datasets; FDR = false discovery rate



Barch et al., in press Biological Psychiatry

Response to Win and Loss Post vs HC's



Effects on Parents

- Decreases in parenting stress
- Changes in parenting approach to addressing child's emotional expression
- Decreases in parental depression

Parental Minimizing

CDI (BL to A)
Wait List vs. PCITED

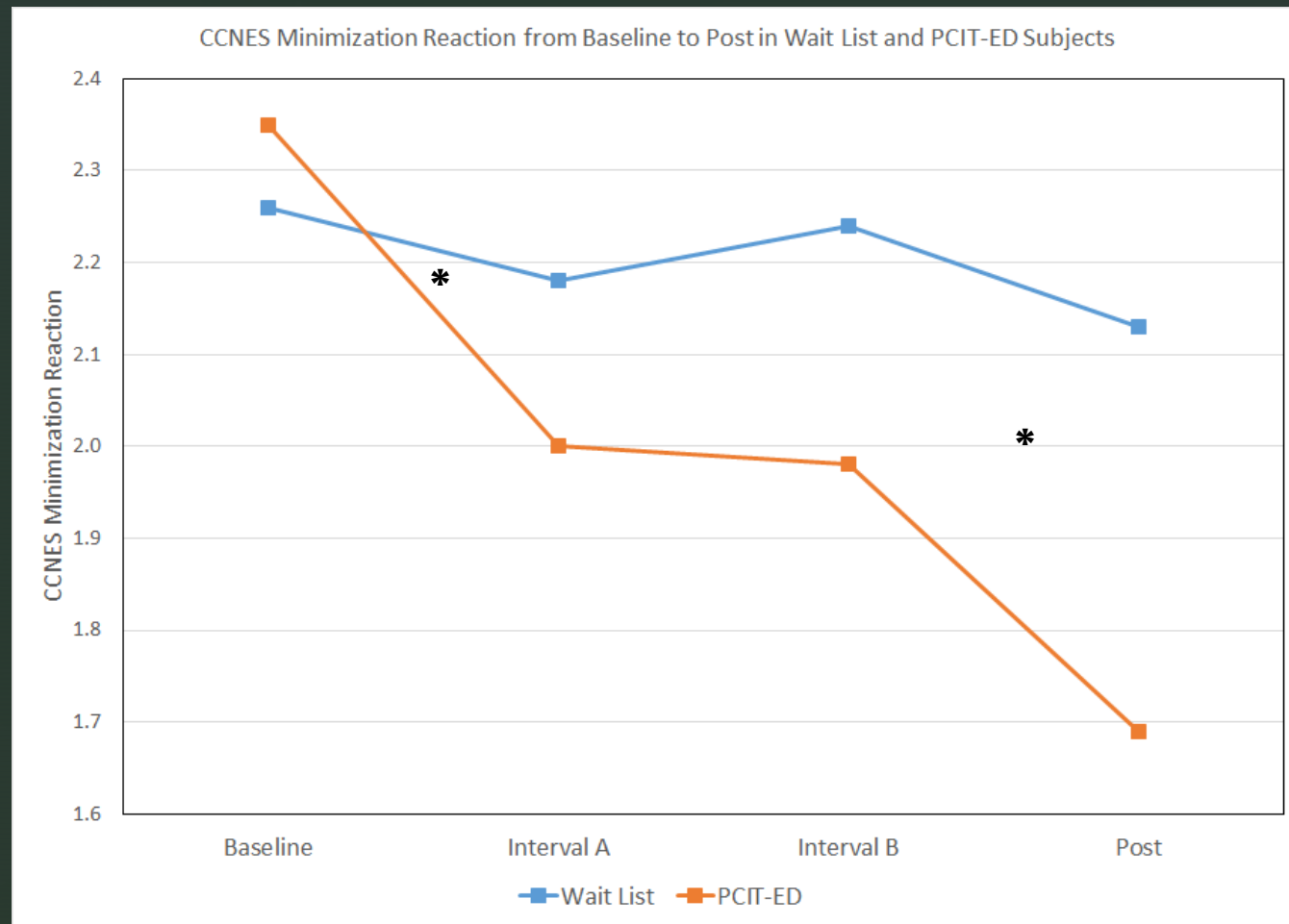
t	p	Cohen's d
2.54	0.0118	0.37

PDI (A to B)
Wait List vs. PCITED

t	p	Cohen's d
1.17	0.2447	0.18

ED (B to Post)
Wait List vs. PCITED

t	p	Cohen's d
2.74	0.0069	0.41



Parental Distress Reactions

CDI (BL to A)
Wait List vs. PCITED

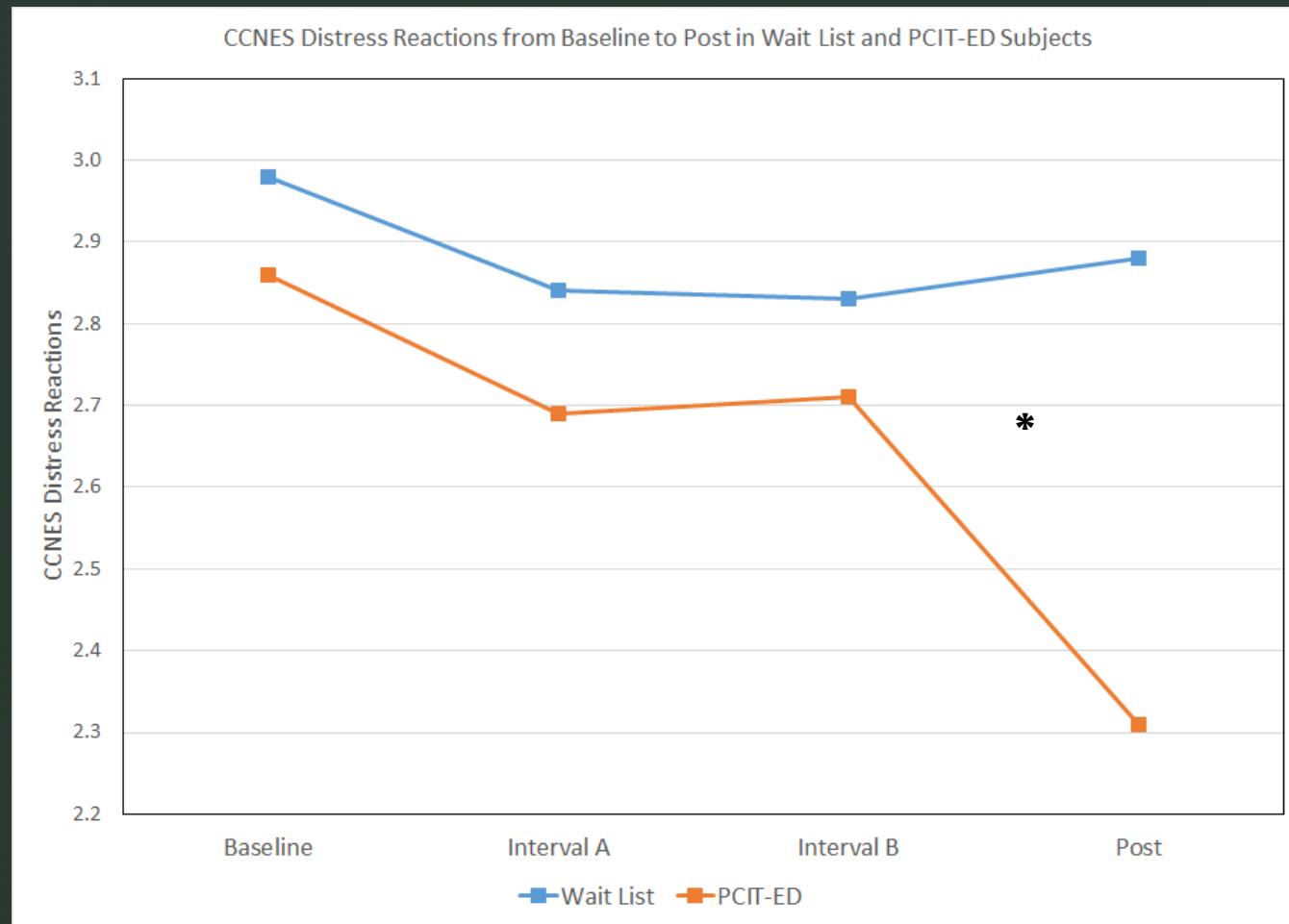
t	p	Cohen's d
-0.21	0.8343	-0.03

PDI (A to B)
Wait List vs. PCITED

t	p	Cohen's d
-0.58	0.5615	-0.09

ED (B to Post)
Wait List vs. PCITED

t	p	Cohen's d
5.67	<0.0001	0.85



Parent Emotion-Focused Reactions

CDI (BL to A)
Wait List vs. PCIT-ED

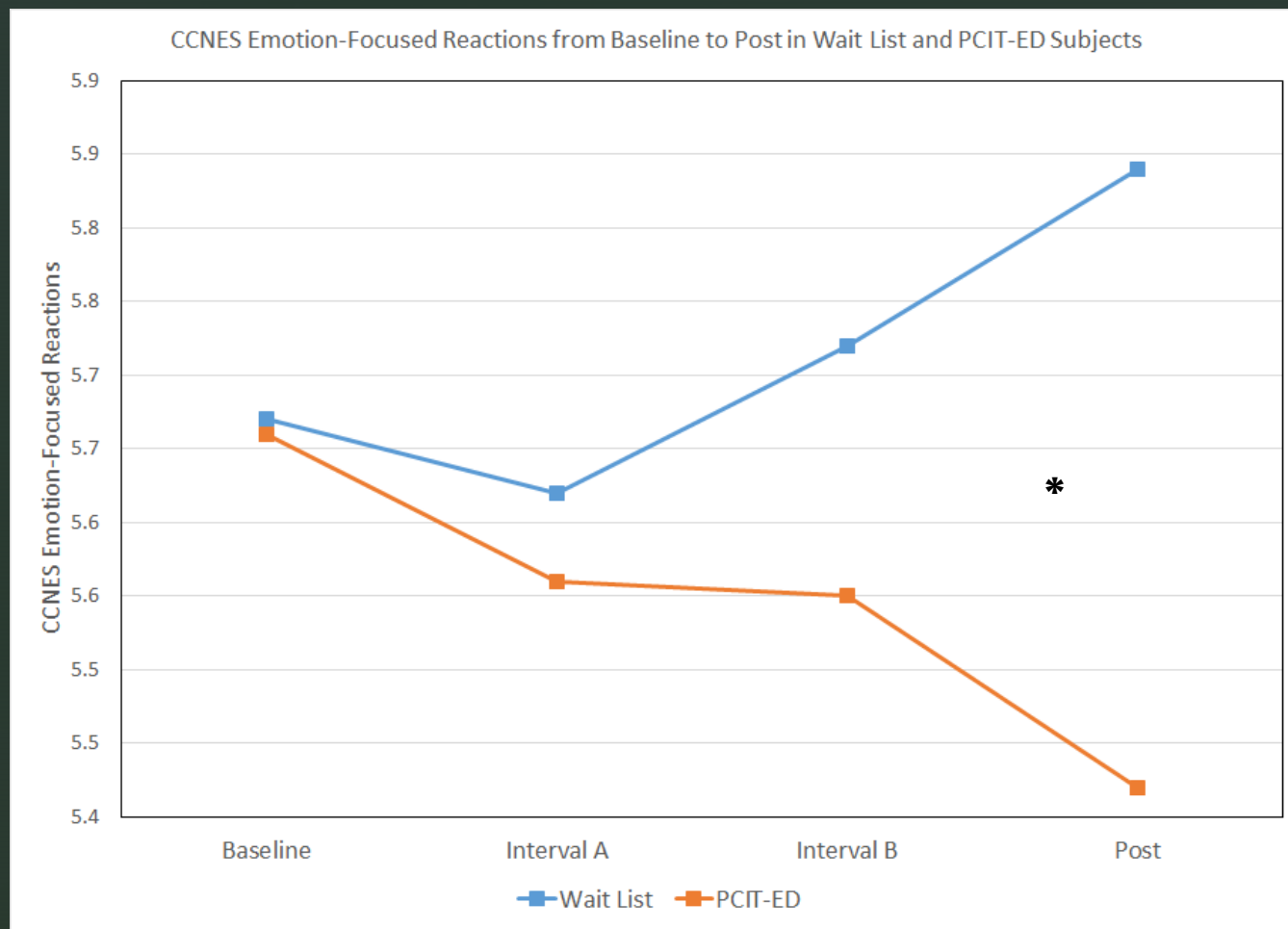
t	p	Cohen's d
0.22	0.8234	0.03

PDI (A to B)
Wait List vs. PCIT-ED

t	p	Cohen's d
1.44	0.1508	0.22

ED (B to Post)
Wait List vs. PCIT-ED

t	p	Cohen's d
2.81	0.0055	0.42



Parent Expressive Encouragement

CDI (BL to A)
Wait List vs. PCITED

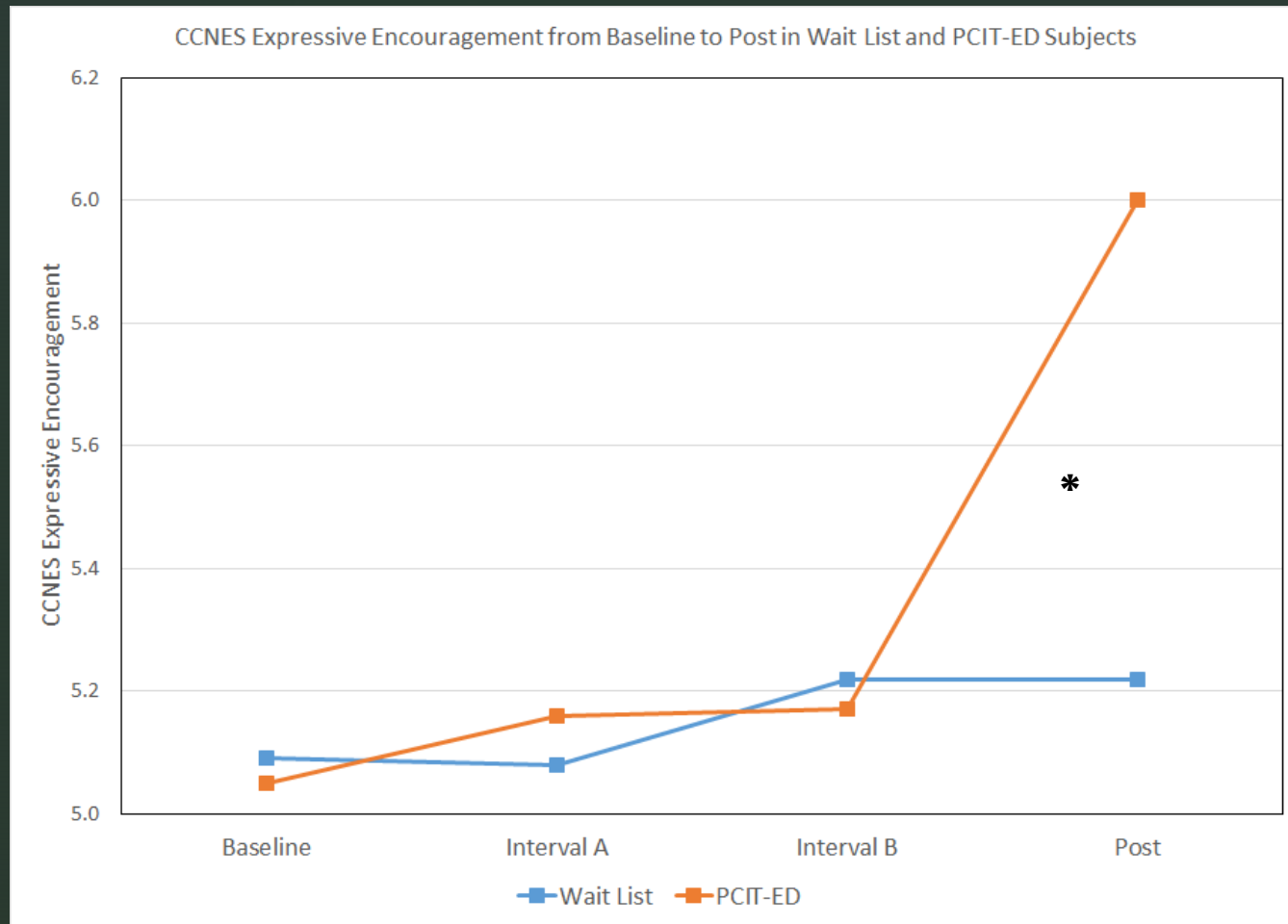
t	p	Cohen's d
-0.60	0.5525	-0.09

PDI (A to B)
Wait List vs. PCITED

t	p	Cohen's d
0.73	0.4661	0.11

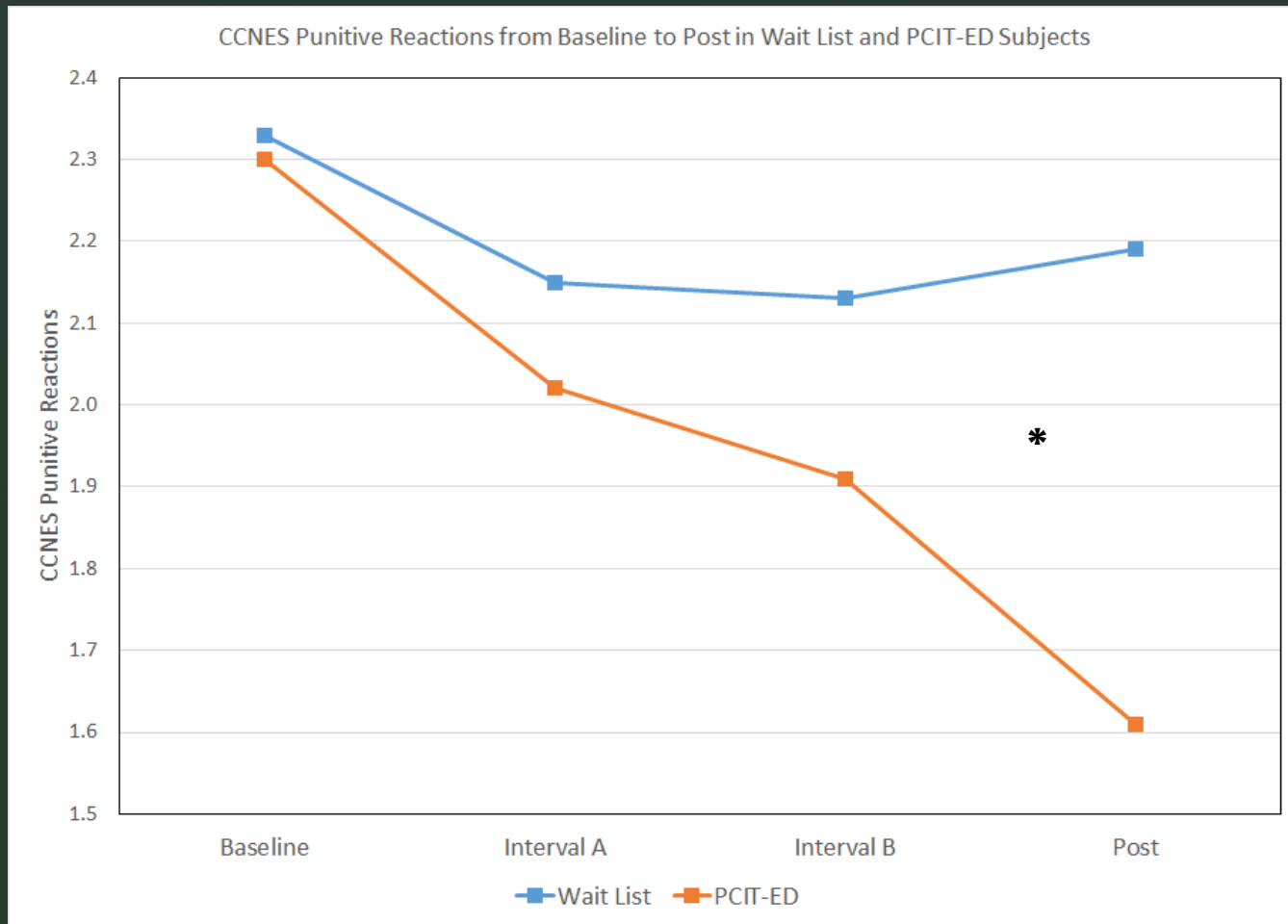
ED (B to Post)
Wait List vs. PCITED

t	p	Cohen's d
-6.55	<0.0001	-0.97



Parent Punitive Reactions

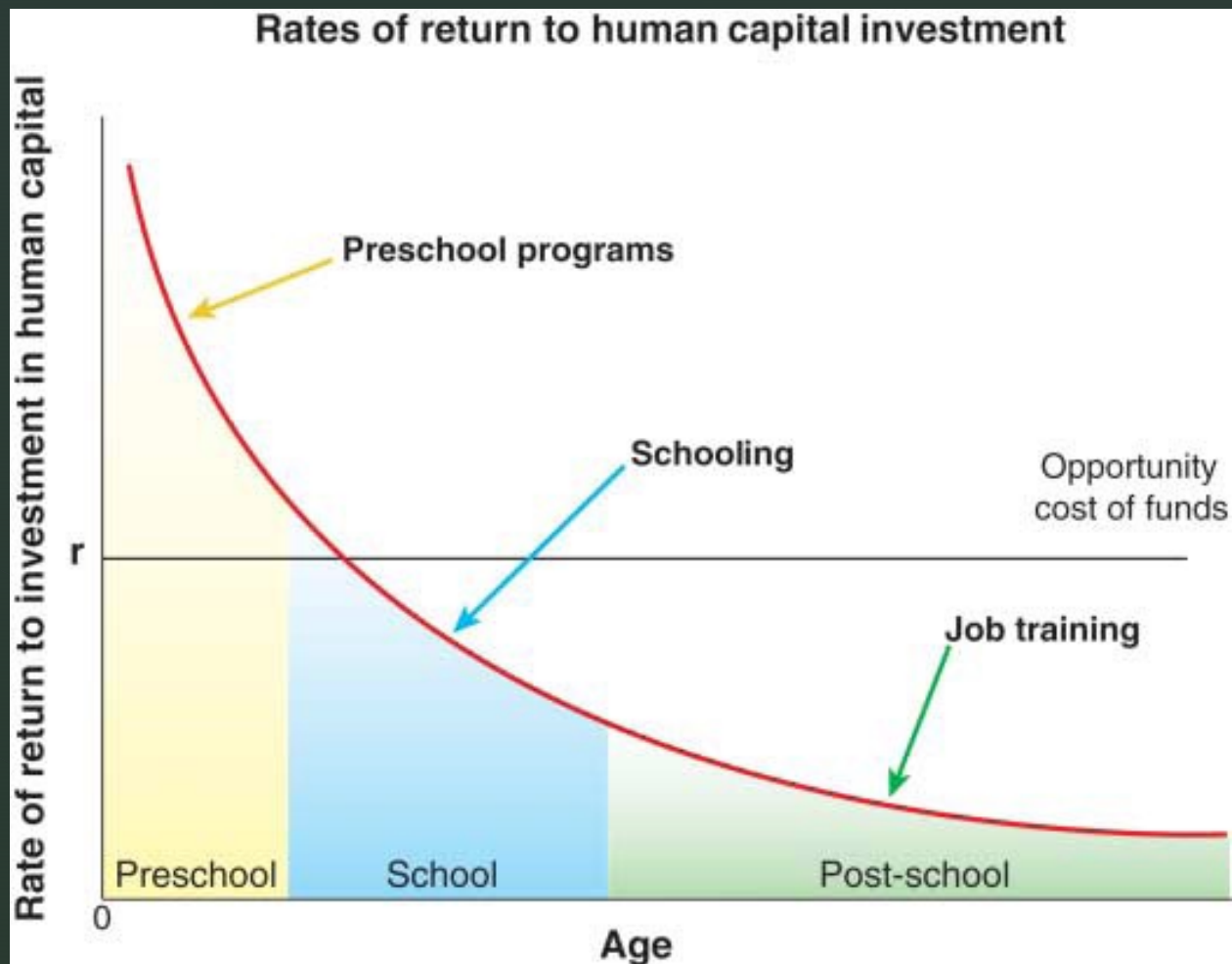
CDI (BL to A) Wait List vs. PCITED			PDI (A to B) Wait List vs. PCITED			ED (B to Post) Wait List vs. PCITED		
t	p	Cohen's d	t	p	Cohen's d	t	P	Cohen's d
0.84	0.4032	0.12	0.81	0.4218	0.12	4.95	<0.0001	0.75



Powerful and Sustained Effects of Early Psychotherapeutic Intervention in Preschool Depression

- Parent-child therapy that focuses on enhancing emotion development.
- Uses a “bug in the ear” and a teach and live coaching approach.
- Shown to have very large effects (based on a large scale RCT) with behavioral improvement and improvement in neural response (American Journal of Psychiatry 2019).
- Improvements are sustained into preadolescence.*
- Now applying these novel methods in virtual formats earlier in life.

*Dean's Medal for Research Excellence 2025



The declining figure plots the payout per year per dollar invested in human capital programs at different stages of the life cycle. The opportunity cost of funds (r) is the payout per year if the dollar is invested in financial assets (e.g., passbook savings) instead.

Early Intervention to Enhance Emotion Development: Harnessing Neuroplasticity

Emotion development begins at birth and is surprisingly sophisticated even in toddlerhood with evidence of guilt and prosocial behavior arising as early as 18 months.

This suggests this developmental trajectory can be enhanced early in development to strengthen and provide resilience from risk for psychopathology.

Psychosocial factors influence brain development most powerfully during early life sensitive periods

Early psychosocial interventions targeting the dyad and focused on emotion development important opportunity in early life---and is currently a under emphasized developmental target.