

Intervening with Vulnerable Infants

Värna Våra Yngsta konferens
Stockholm
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University of Delaware

Adverse Childhood Experiences (ACEs) Study

Felitte, Anda, and colleagues

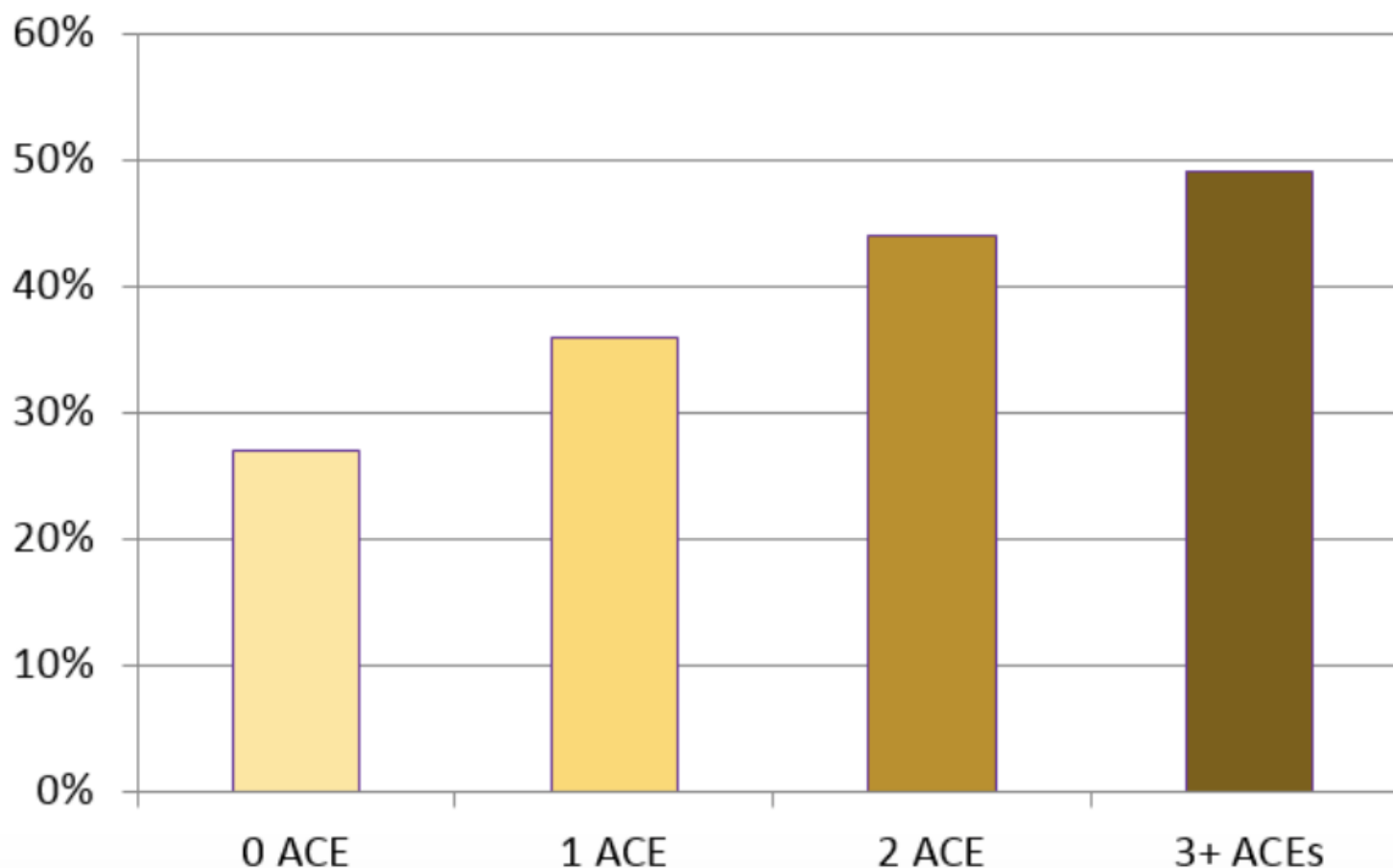
- Physical abuse
- Emotional abuse
- Sexual abuse
- Neglect (emotional or physical)
- Parent psychiatric disorder
- Parent violence
- Divorce
- Parent substance abuse
- Parent incarcerated

17,000 people surveyed and followed over time

ACE Effects in School

Does Not Finish Tasks Started

The student “sometimes,” “rarely,” or “never” finishes tasks he starts or follows through with what he says he will do.

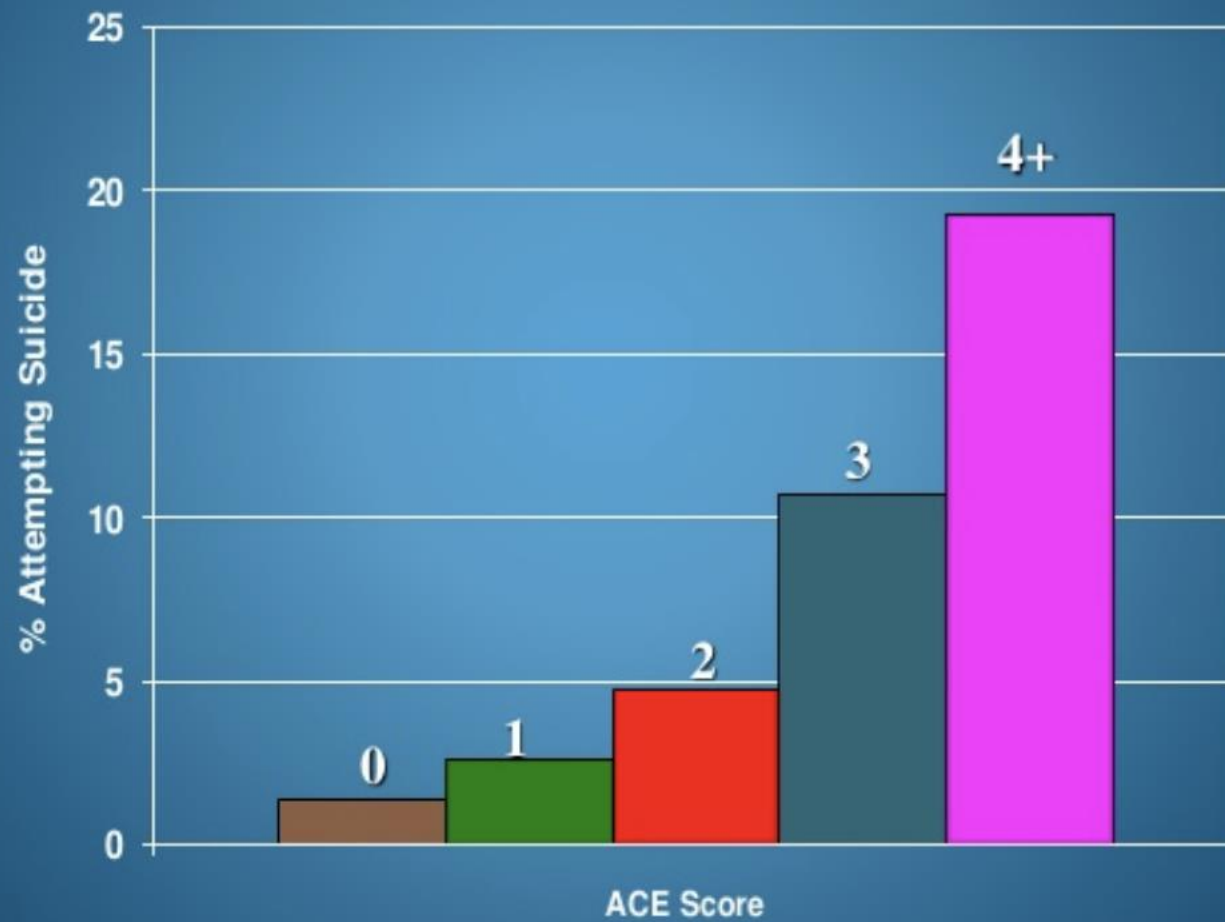


Source: National Survey of Children's Health, Johns Hopkins University (2012)

Childhood Experiences vs. Adult Alcoholism



Suicide



Felletti & Anda, 2012

ACEs

- Increase risk to nearly every negative outcome imaginable (health and mental health)
- But probabilistic, not deterministic
 - Increases risk, doesn't **cause** bad outcomes
 - Preventable - we can intervene
- But why so problematic?

Infants and young children

- Biologically prepared to depend on parents

Parent as co-regulator

- Infant/young child not capable of regulating behavior and biology alone
- Parent serves as a co-regulator or buffer
- Extended period of immaturity/dependence on parent

- Distress will not overwhelm child
- Can count on parent to handle

- Smooth interactions

Failure in this caregiving system

Effects of adversity

- Especially vulnerable are developing brain and behavioral systems that are dependent on environmental input
- Behavioral systems
 - Attachment
 - Inhibitory control
- Brain systems
 - HPA axis
 - Threat response system: Amygdala, fusiform gyrus
 - Prefrontal cortex
- Plasticity

Range of conditions - neglect

- Neglected children
 - Living with neglecting parents

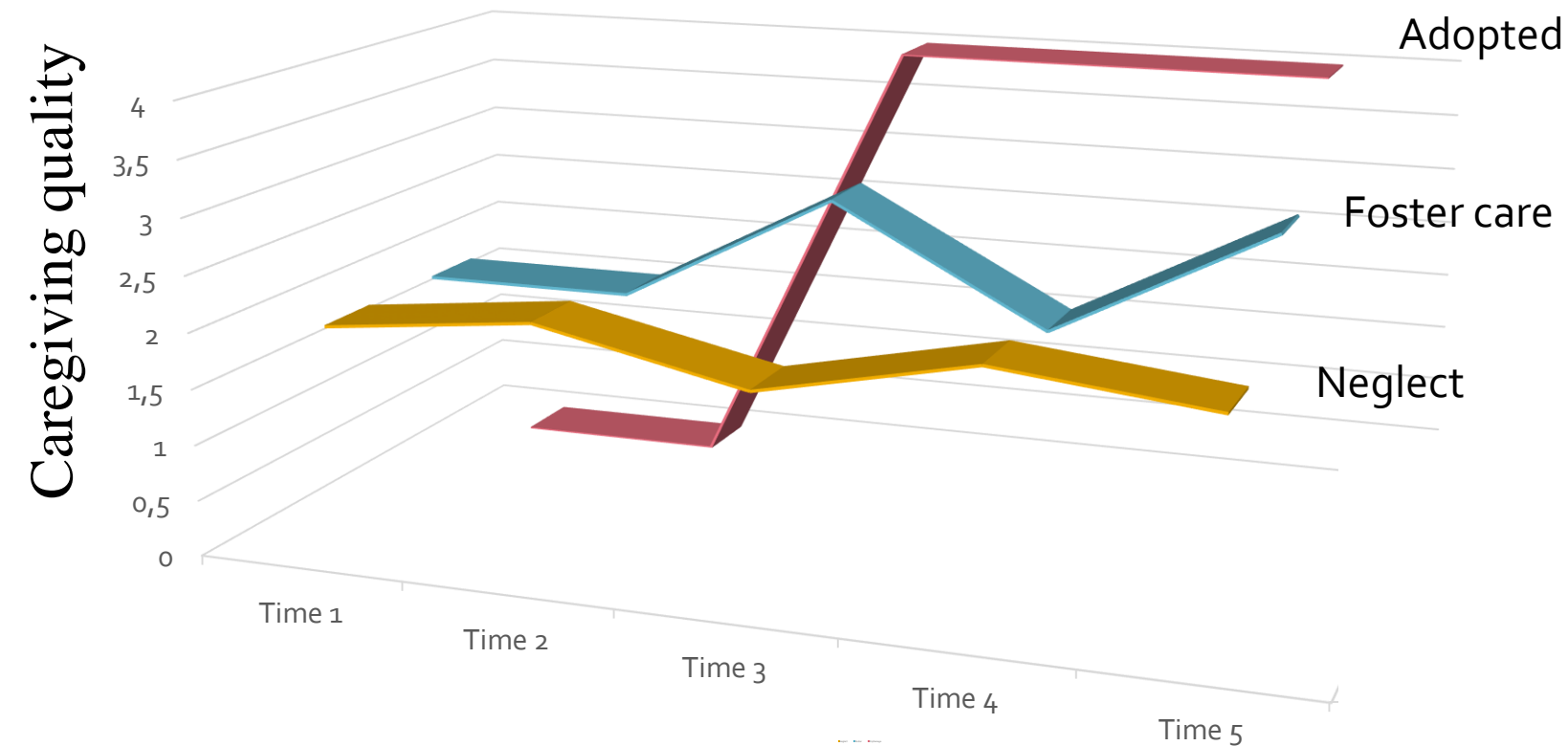
Range of conditions – foster care

- Foster children
 - Lived with neglecting or abusive parent
 - Foster parent – variable

Range of conditions - orphanages

- Children post-institutional care
 - Often most extreme conditions of neglect early
 - Enriched environment at time of intervention

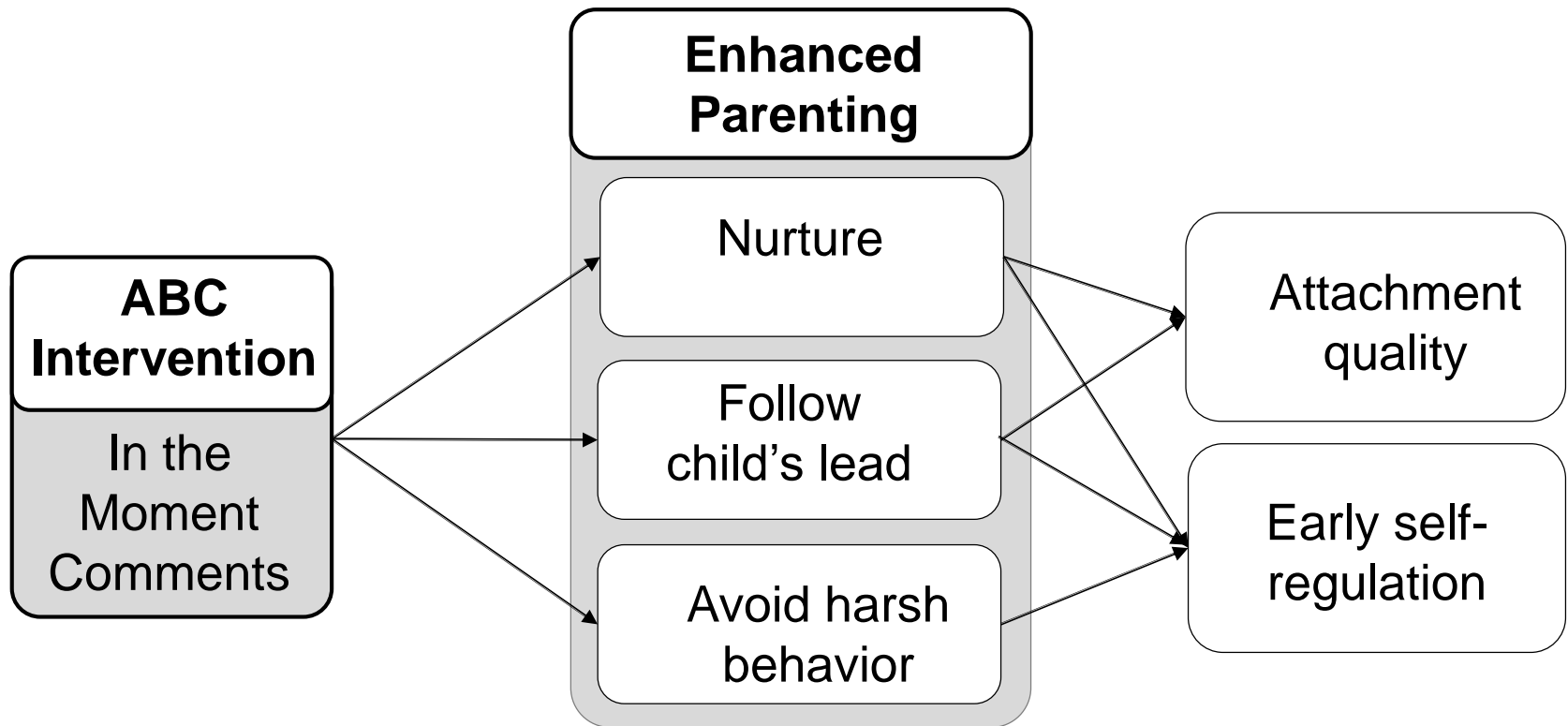
Environments of children in different conditions (theoretical)



Attachment and Biobehavioral Catch-up (ABC)

- 10- session intervention
- Targets key issues identified as problematic for children who have experienced early adversity
- Implemented in home

Targets of Intervention



Nurturance

- Nurturance especially important for children who have experienced early adversity
- Two things can get in the way
 - **Children may push away**
 - Nurturance does not come naturally to some parents

Children push parents away

- Contingency analyses reveal that parents respond in complementary ways

Stovall-McClough & Dozier, 2004, *Development and Psychopathology*

Nurturance

- Two things can get in the way
 - Children may push away or may be hard to soothe
 - **Nurturance does not come naturally to some parents**

Nurturance – what it isn't

Exactly. I told you. Oh, that's ok. Let me see, let me see, (kisses), it's ok, it's ok, it's not broken!

Characteristic ways parents may be non-nurturing

- You're ok. You're not hurt. (dismissing)
- You're a big boy.
- It's not broken? (making fun of child)
- I told you! (fussing)
- Look outside. There's a butterfly! (distraction)
- Ignore

All of these – giving child message that he or she shouldn't bring distress to parent

First target for intervention: Providing nurturance

- Even when child doesn't elicit it
- Even when it doesn't come naturally to parent

- Manualized content
- In the moment comments

Supporting nurturance through in the moment comments

Comments can have 1-3 components

1. Description of parent behavior

“He’s crying and you’re holding him”

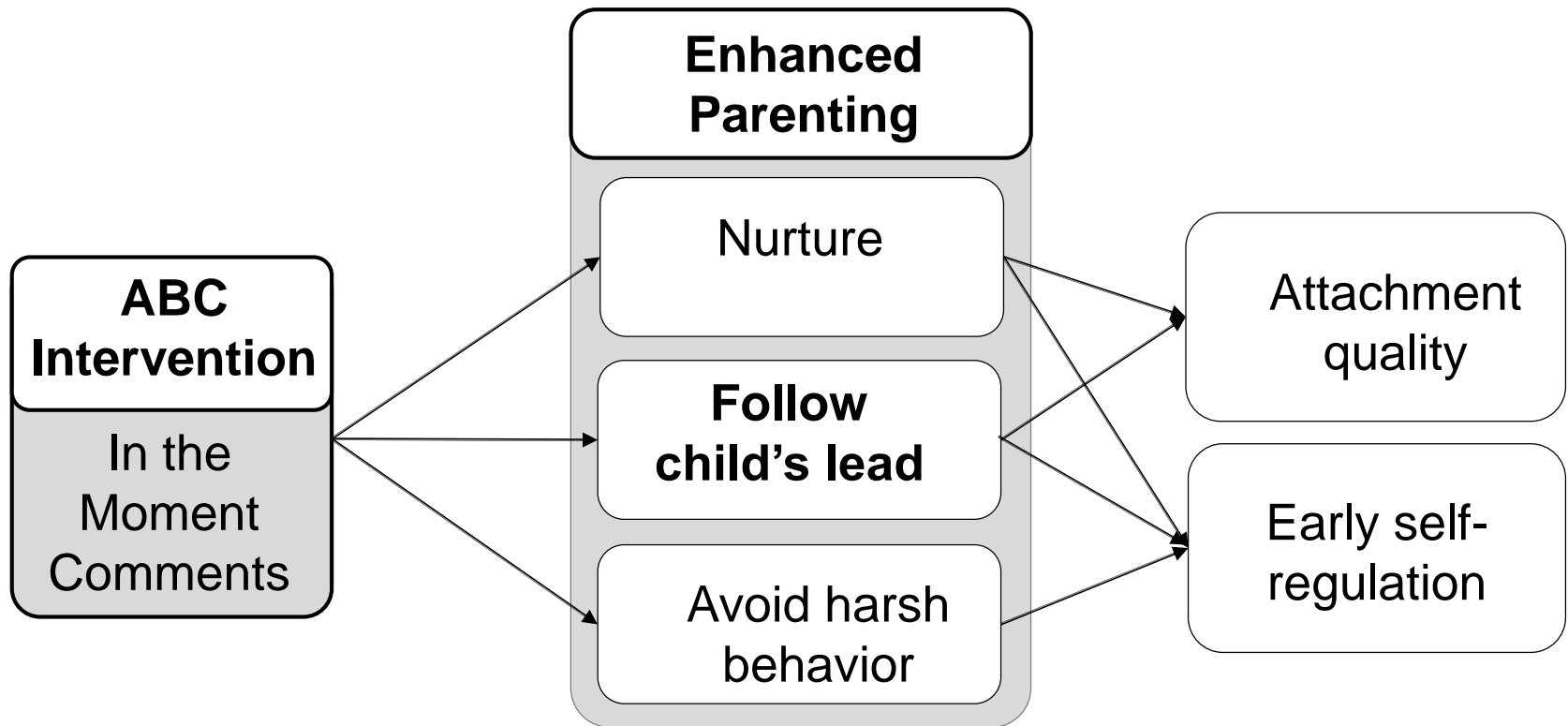
2. Link parent behavior to intervention target

“Good job nurturing him”

3. Link parent behavior to child outcome

“That lets him know you’re there for him”

Targets of intervention



Biological dysregulation

Early adversity leads to biological dysregulation

HPA axis

H - Hypothalamus

P - Pituitary

A – Adrenal

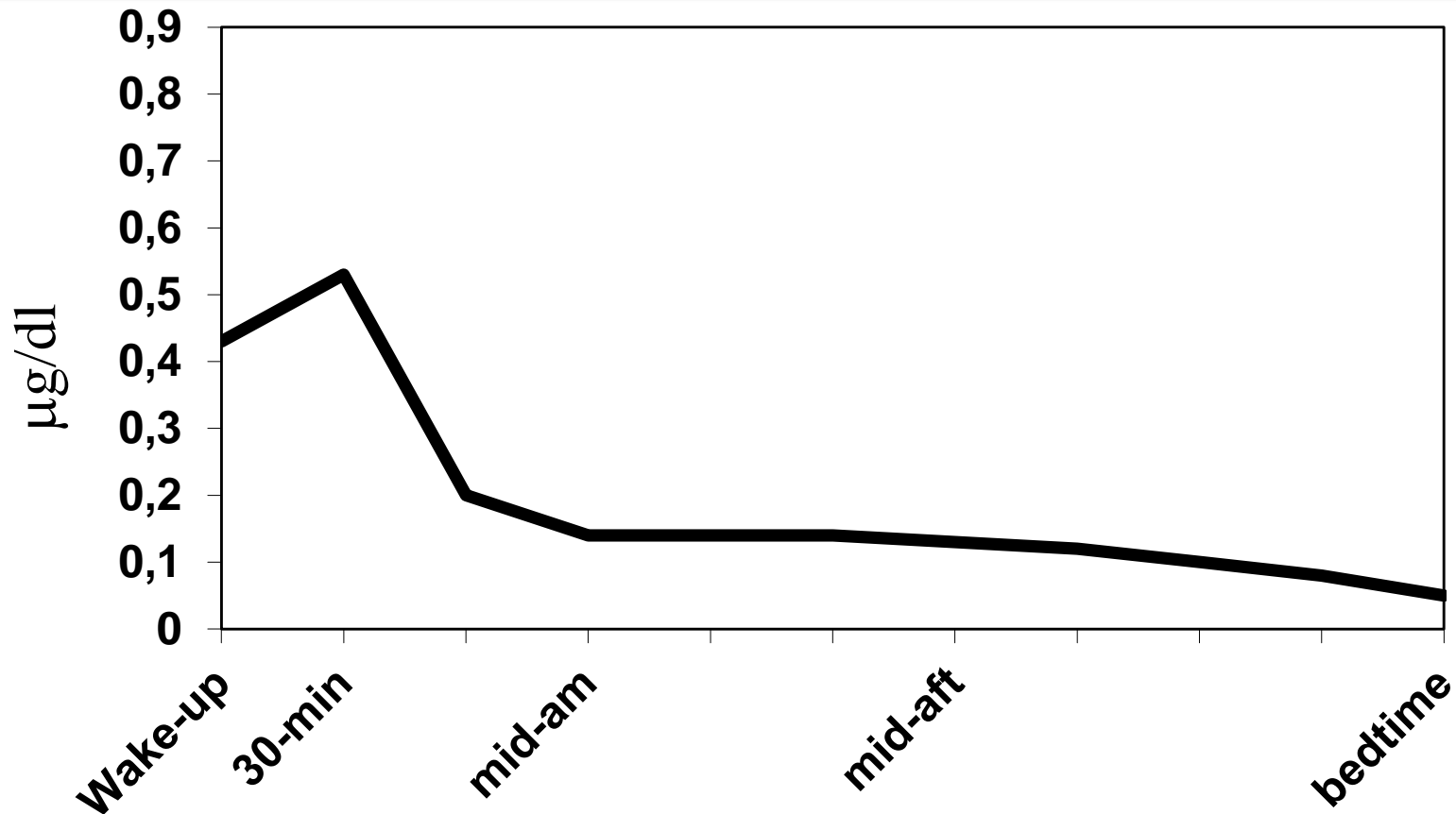
Cortisol an end product

Sensitive to effects of
early experience

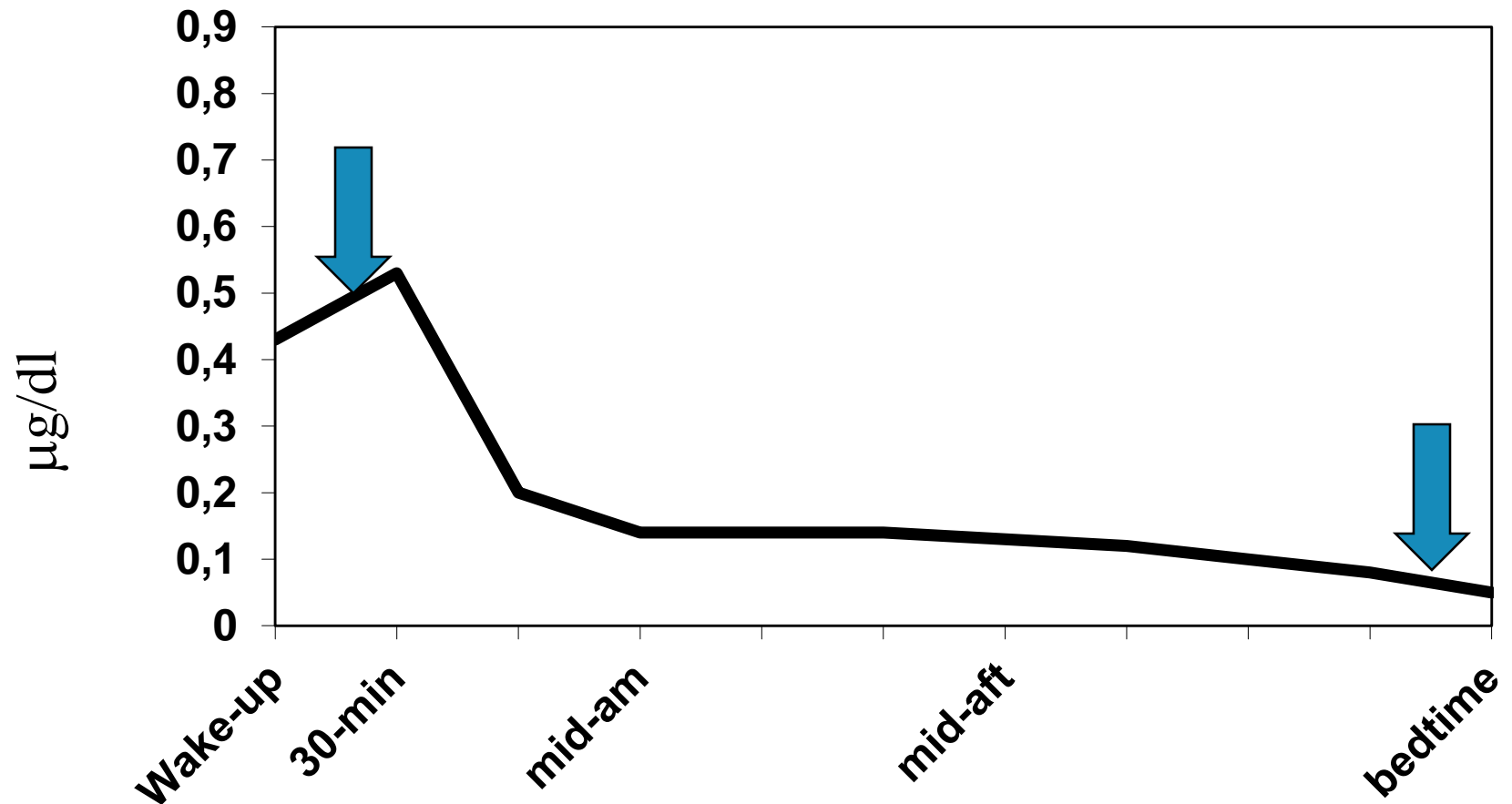
HPA axis: 2 orthogonal functions

- Stress reactive function
 - Body's mounting a stress response
- Diurnal function
 - Organism functioning as diurnal (or nocturnal) creature

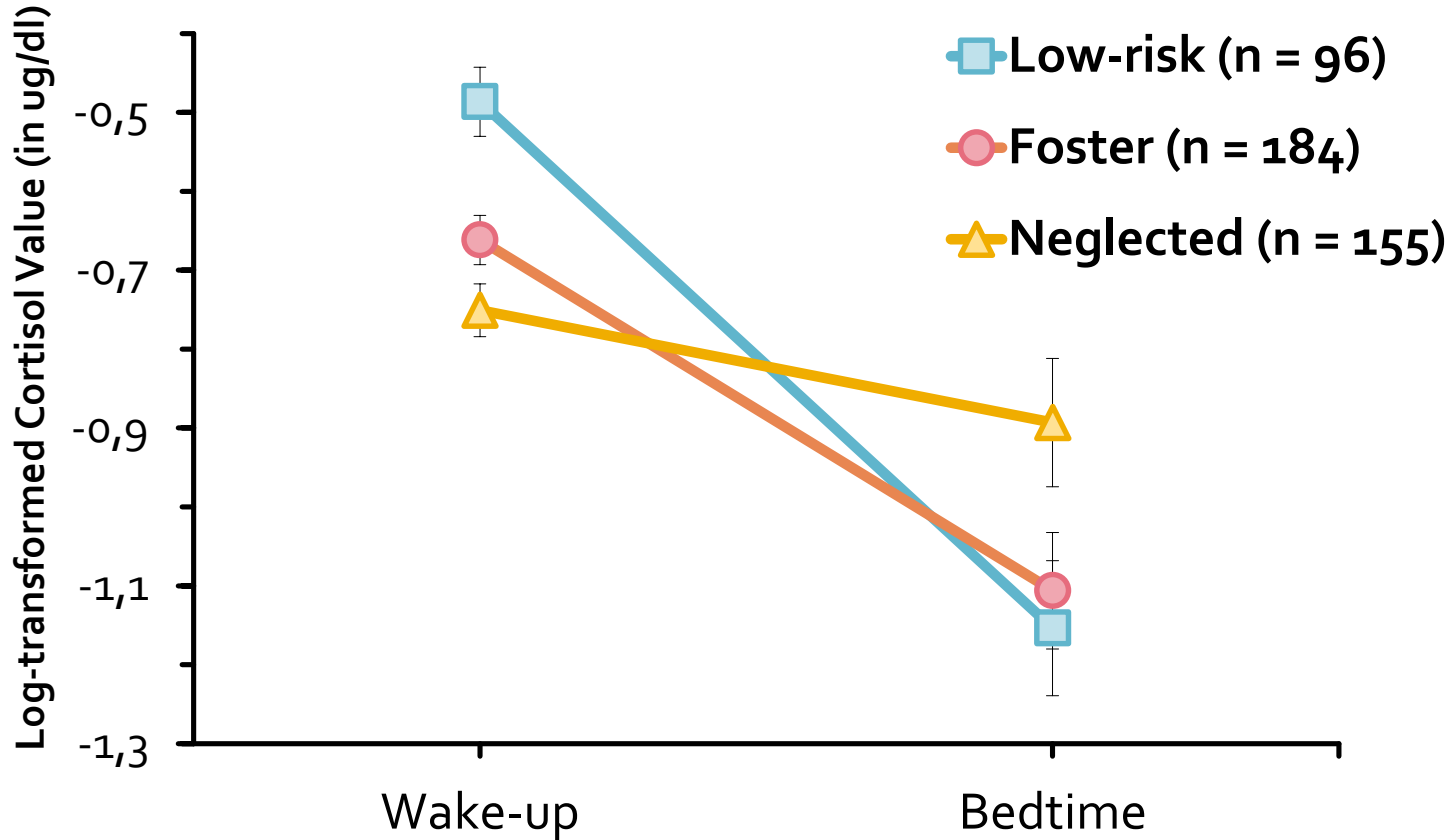
Typical diurnal pattern of cortisol



When we measure cortisol



Early adversity and diurnal cortisol



Second target for intervention: Helping children develop better regulatory capacities

- Parents who follow child's lead have children with better self-regulation (Raver, 1996)

Following the lead – what it is

Comments can have 1-3 components

1. Description of parent behavior

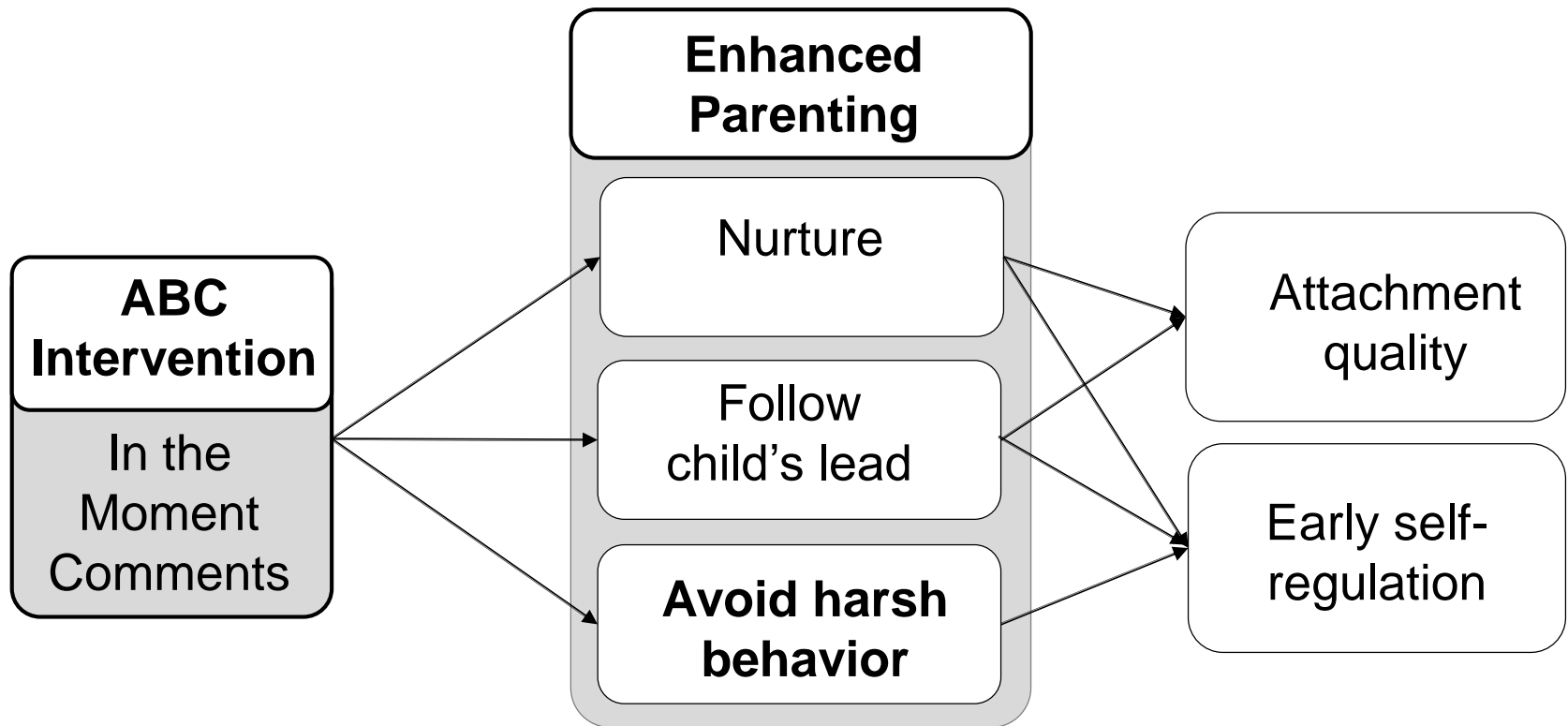
“Like her reaching out and your giving it to her”

2. Link parent behavior to intervention target

3. Link parent behavior to child outcome

“That’s going to make her feel important and like she can have an effect on things around her”

Targets of intervention

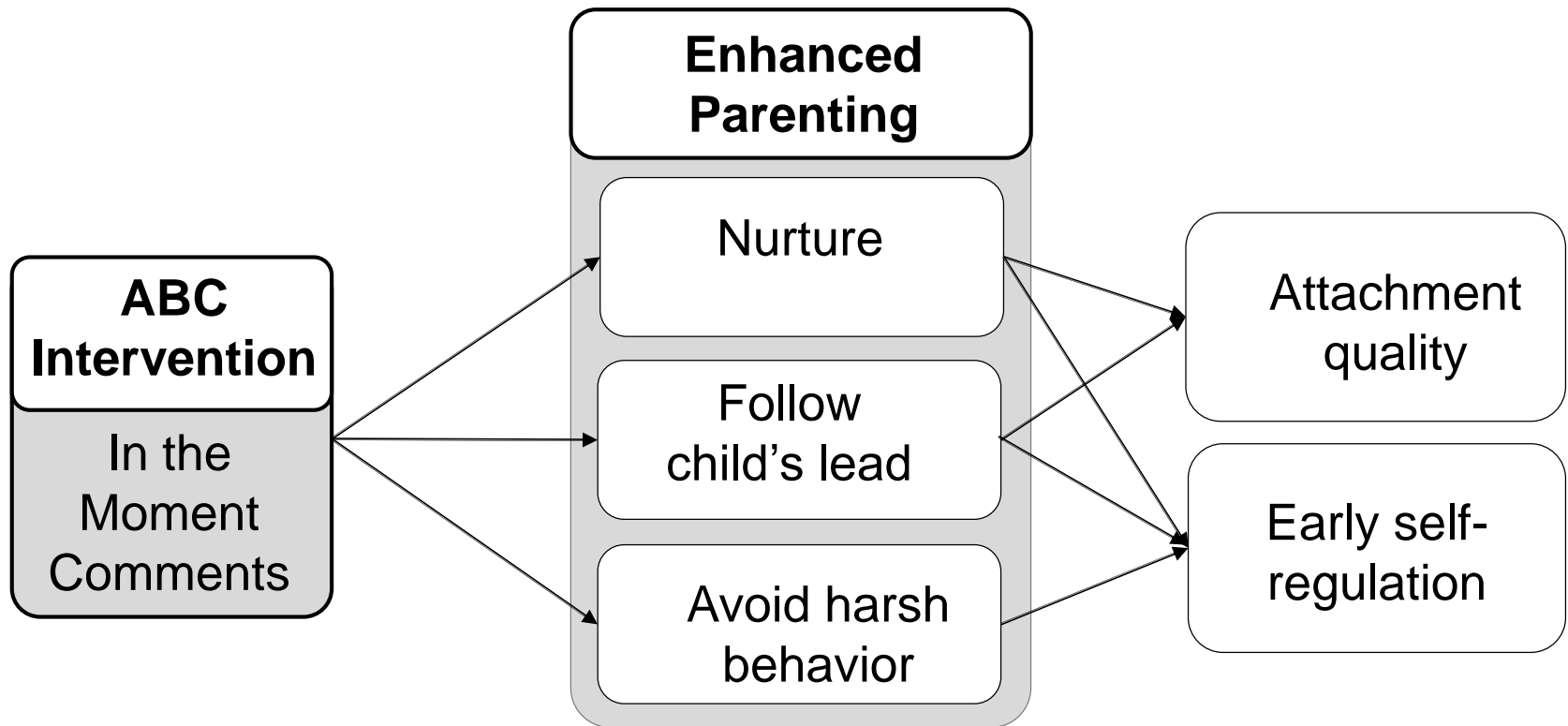


Harsh behavior

- Harsh, frightening, and/or intrusive behavior
 - Undermines child's ability to regulate behavior and biology

Bernard et al., 2010

Targets of intervention



Assessing effectiveness

Randomly assigned children and parents to Attachment and Biobehavioral Catch-up (ABC) or to an alternate intervention (DEF)

Focus here on outcomes for neglected/CPS-involved sample

Children 6-24 months at start of intervention

DEF (Developmental Education for Families)

Control intervention focused on cognitive
and motor development

Structure same as for ABC
10 weekly sessions in home

Intervention effects on parental sensitivity

- Parents who received ABC more sensitive at post-intervention than DEF parents (medium to large effect)
- These gains sustained 3 years later
Bick & Dozier, 2013; Raby et al. in prep; Yarger et al., 2016

Intervention effects on parental brain activity

- Brain activity of neglecting mothers indicated failure to discriminate faces (Rodrigo et al., 2011)

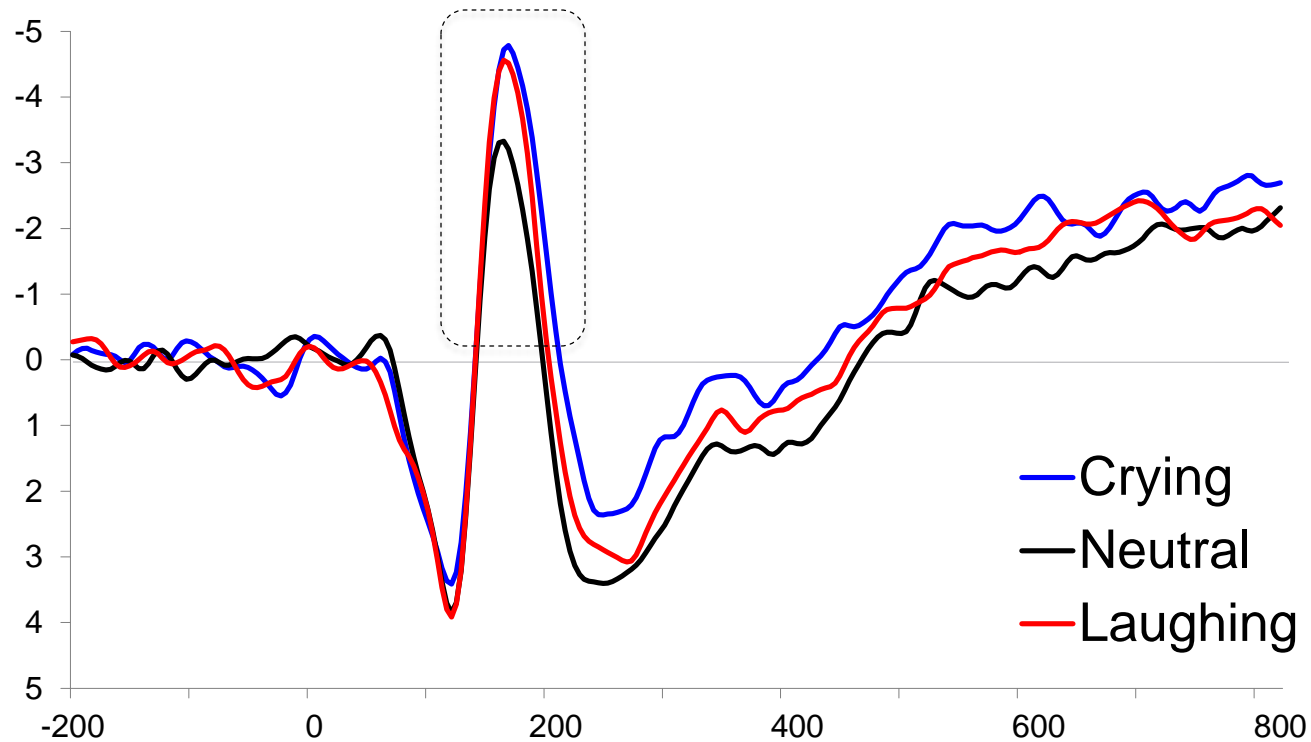
Intervention effects on mothers' neural activity

- Looked at through event related potentials (ERPs)
- Compared 3 groups:
 - Low-risk comparison
 - DEF (high-risk control)
 - ABC (high-risk experimental)

Kristin Bernard dissertation

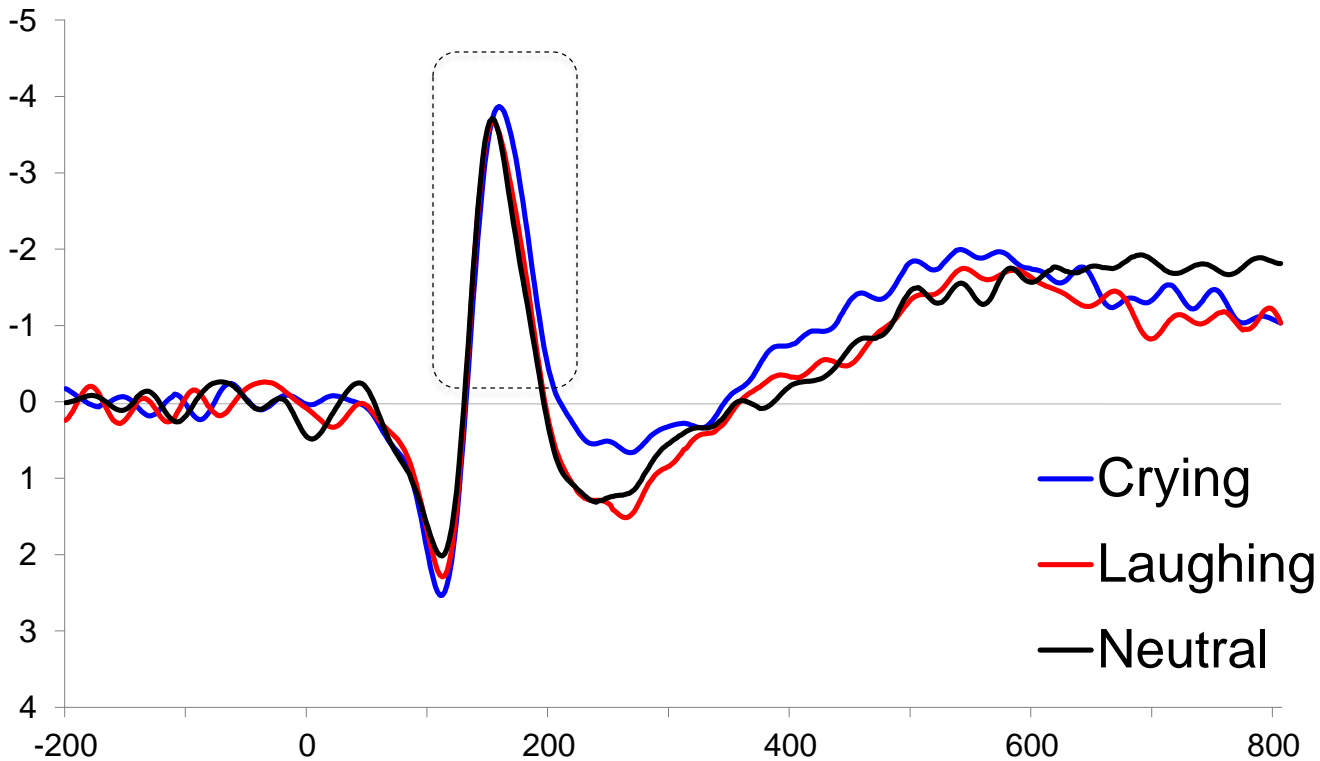
Results- N170

- Low-risk comparison group



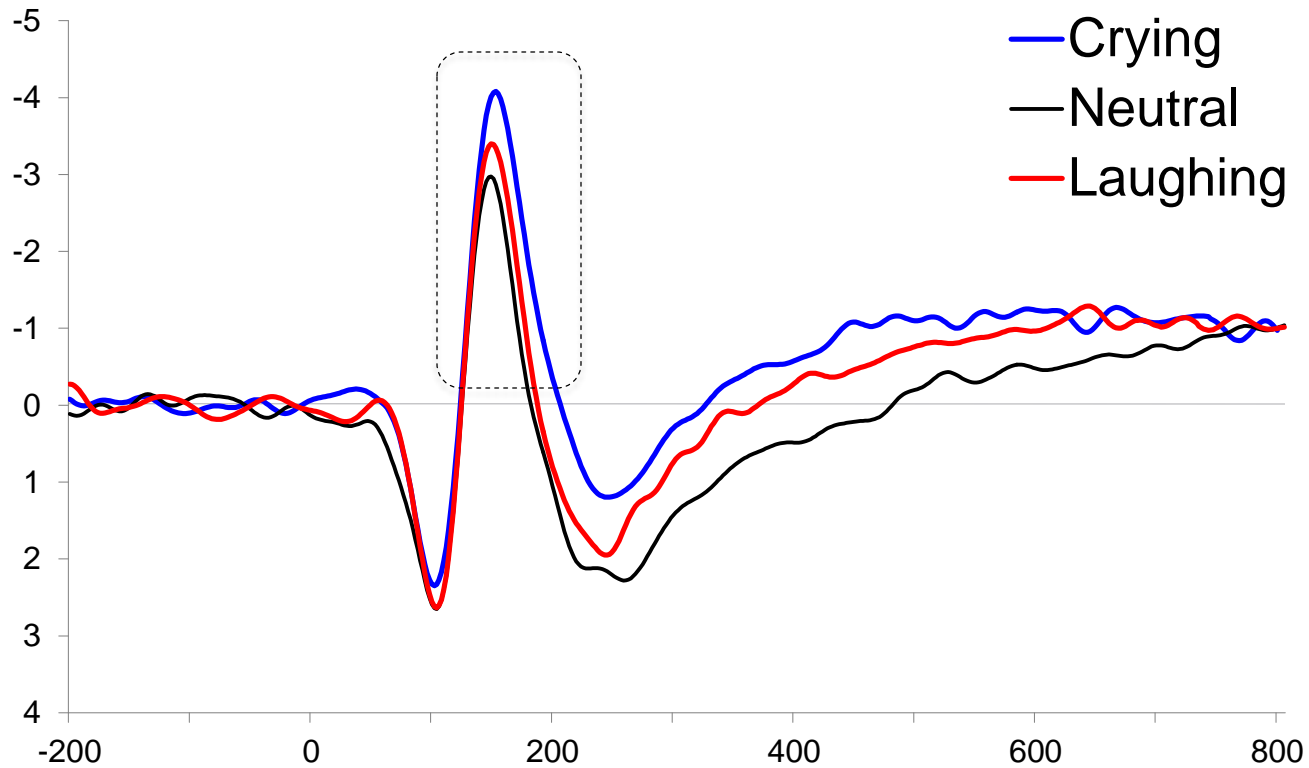
Results- N170

- DEF (High-risk control group)

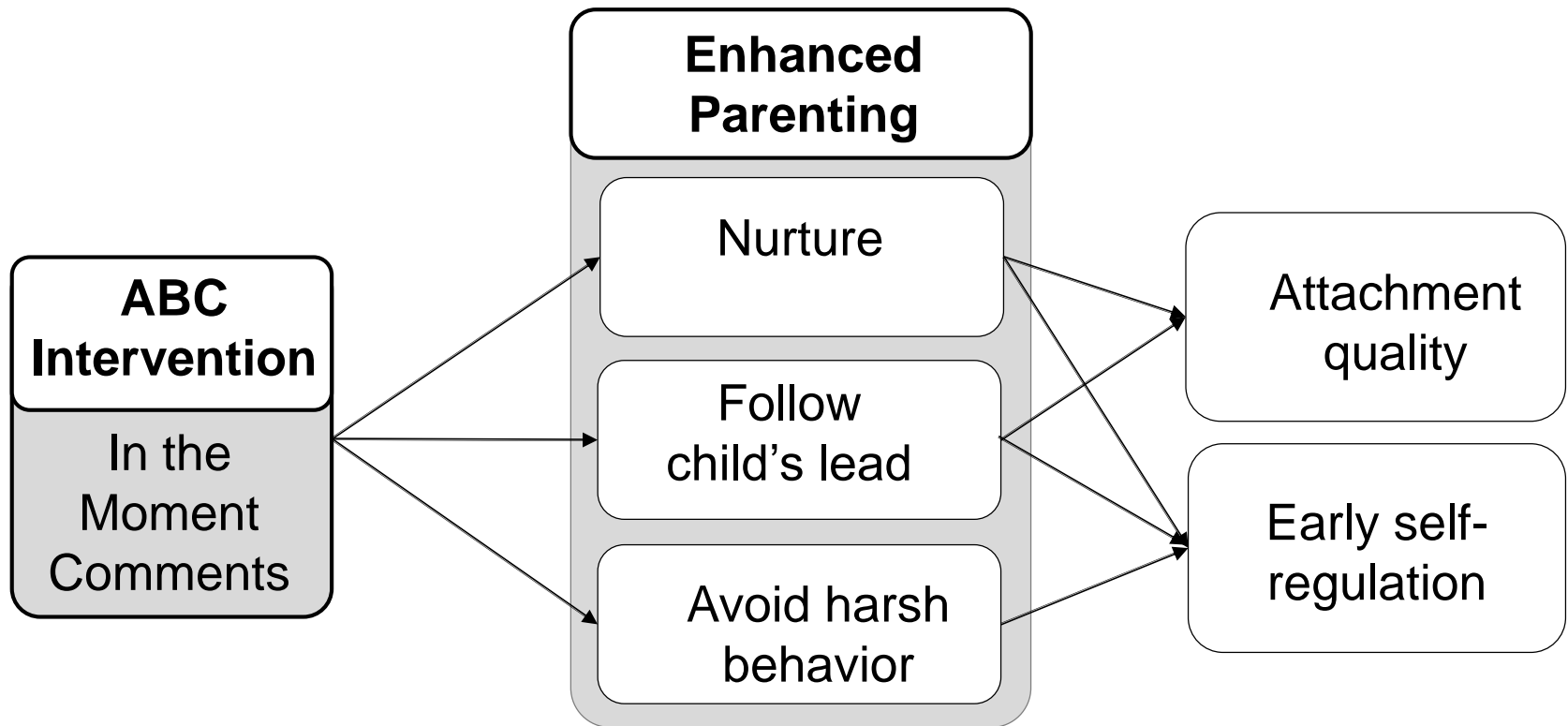


Results- N170

■ ABC



Targets of intervention



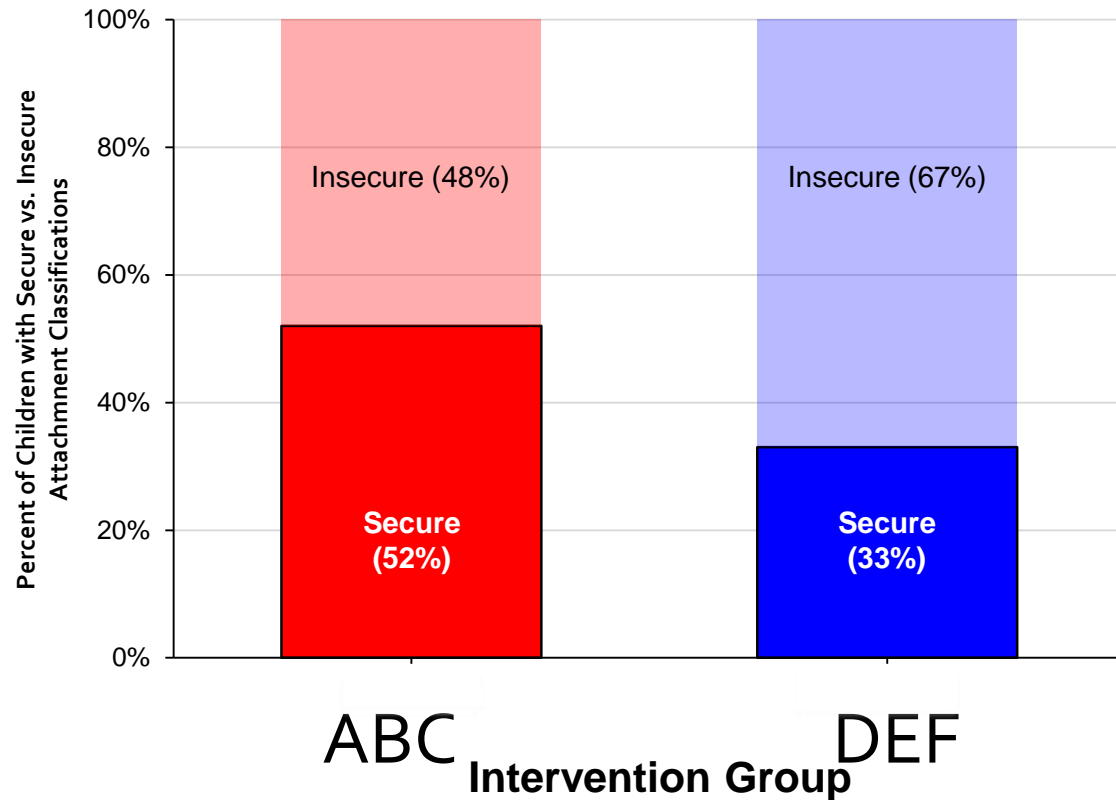
Intervention effects on child attachment security

- Assessed in Strange Situation
- Parents involved in child welfare system
- N=120

Secure

Insecure

Intervention effects on child attachment security

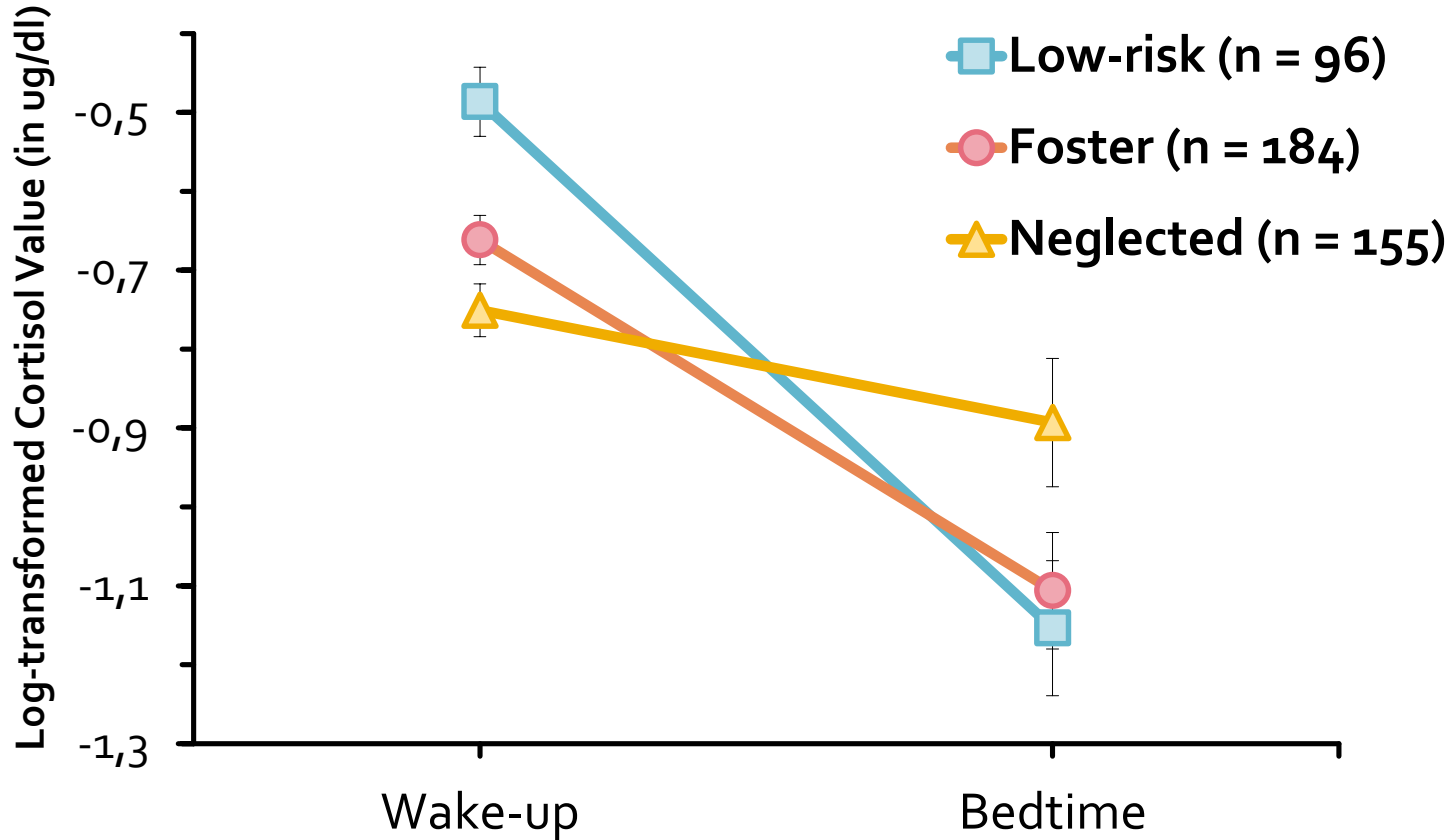


Bernard, Dozier et al., *Child Development*, 2012

Intervention effects on diurnal cortisol production

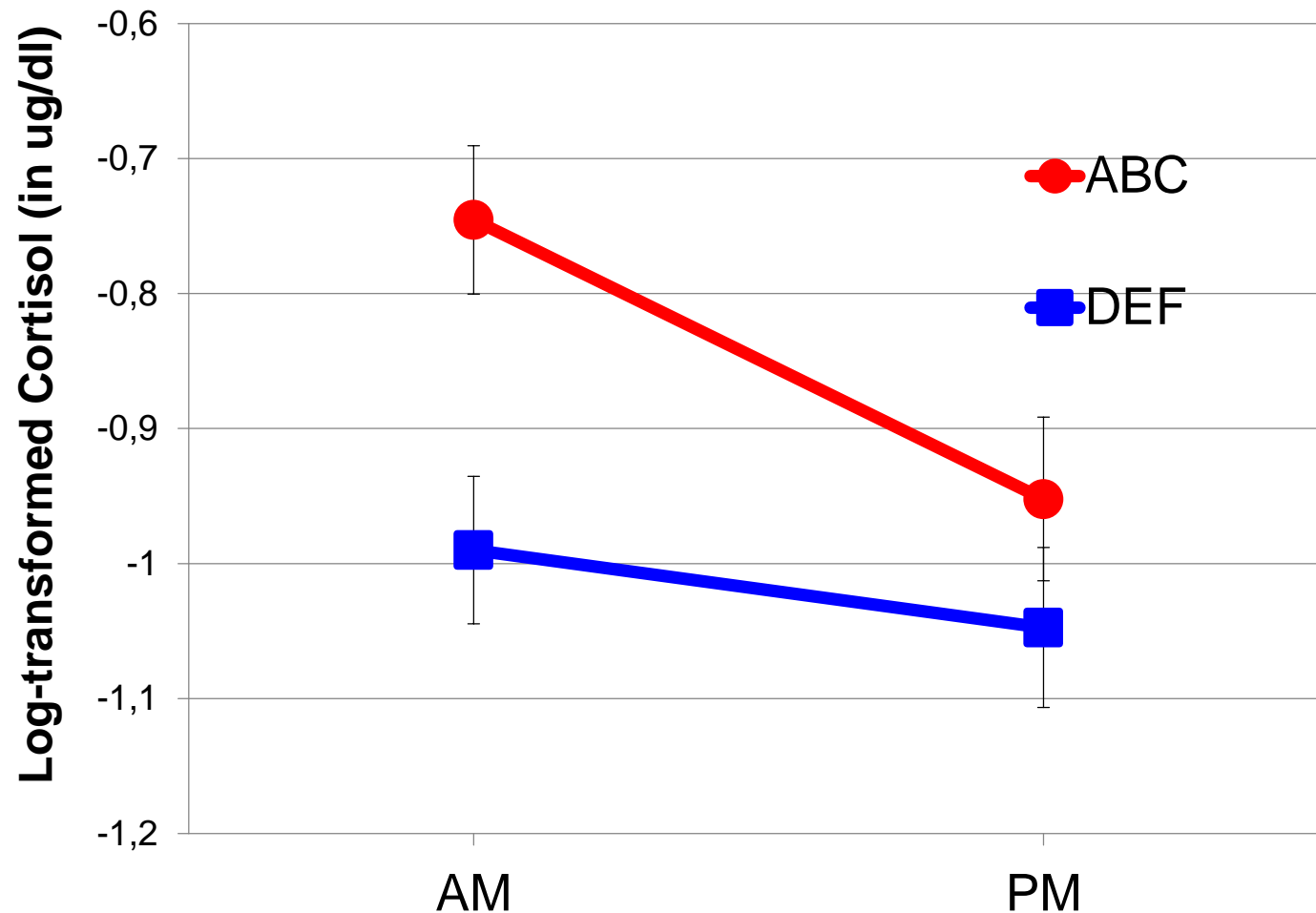
- Assessed at wake-up and bedtime post-intervention over 3 days

Early adversity and diurnal cortisol

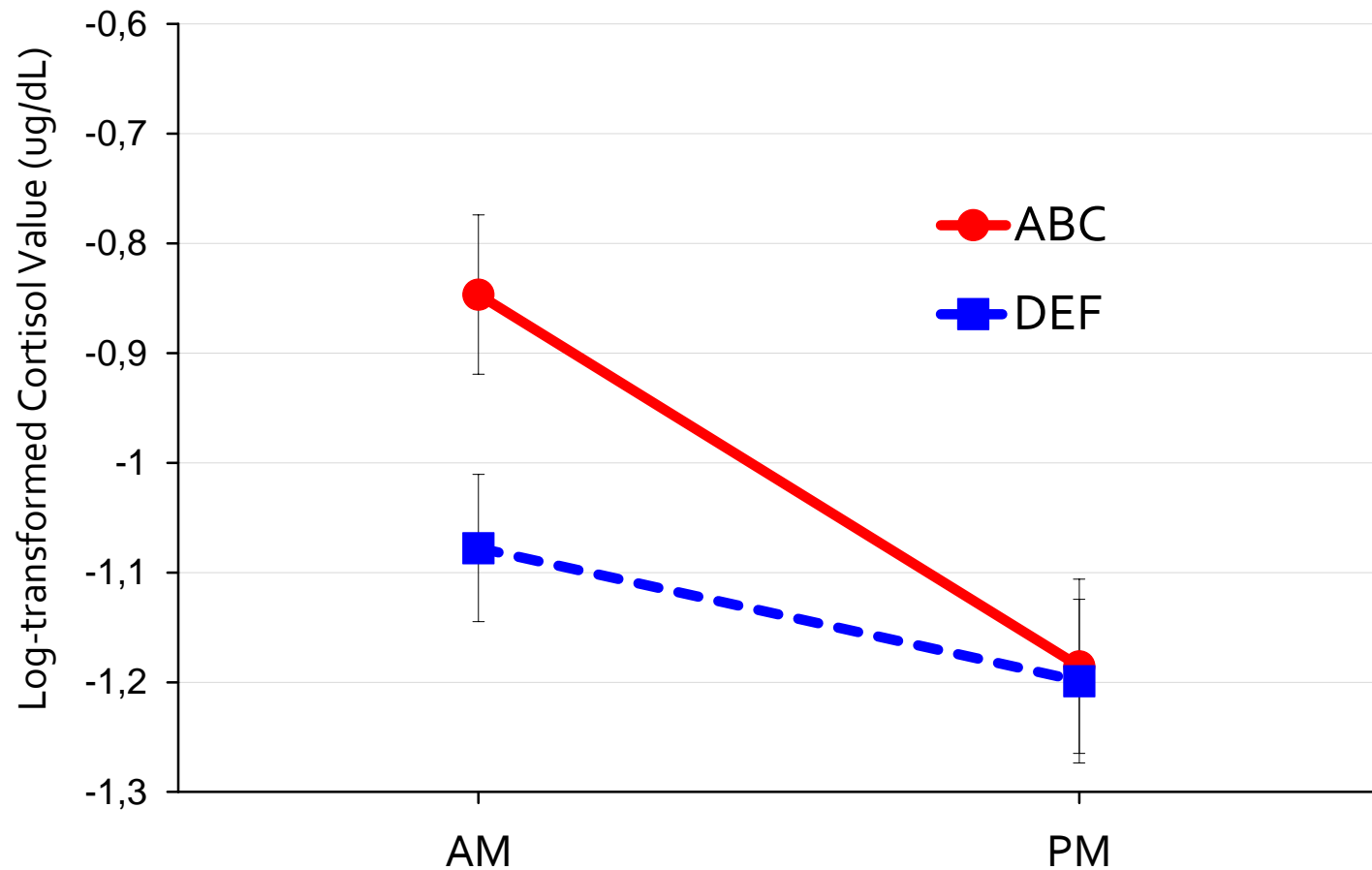


Bernard, Butzin-Dozier, Rittenhouse, & Dozier, 2010

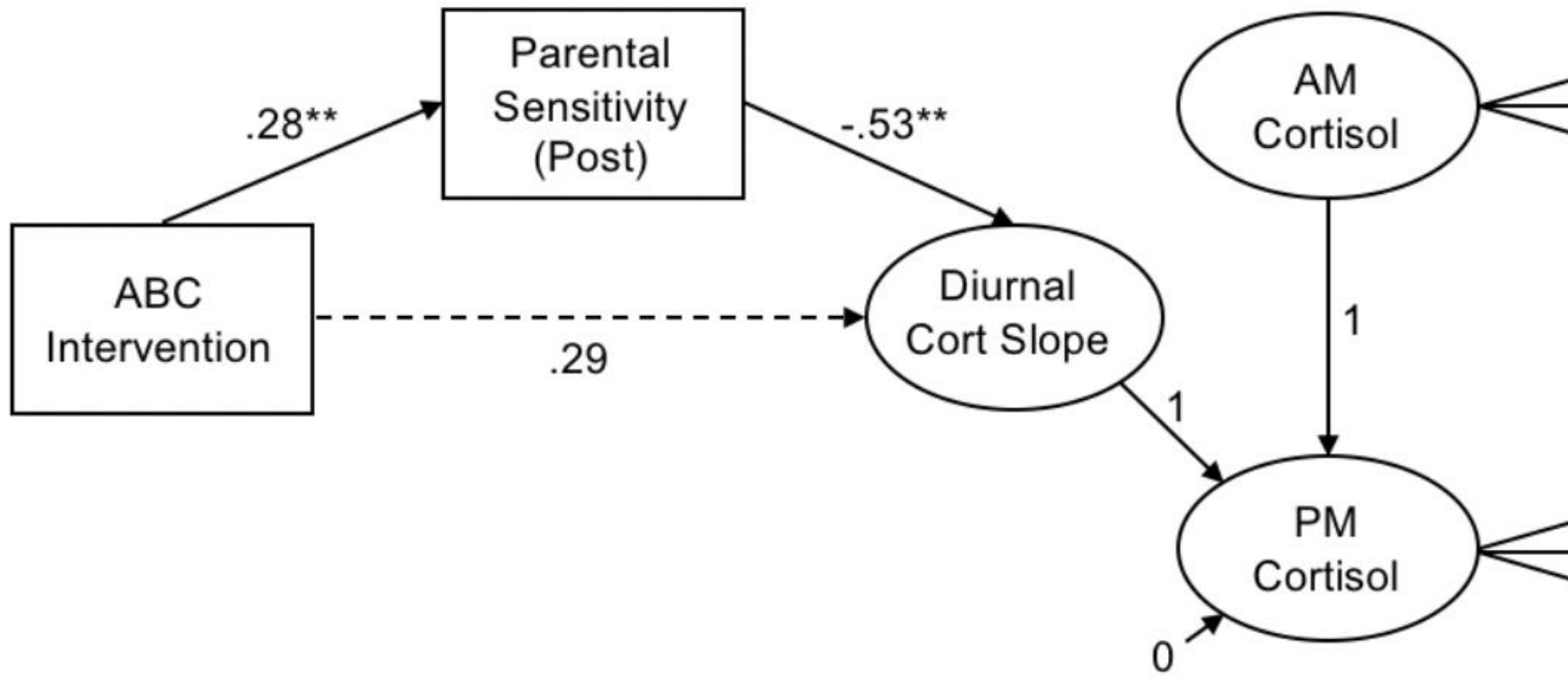
Intervention effects on diurnal cortisol 1 month post-intervention



Intervention effects on diurnal cortisol 3 years post-intervention



Intervention effects on diurnal cortisol 8 years post-intervention



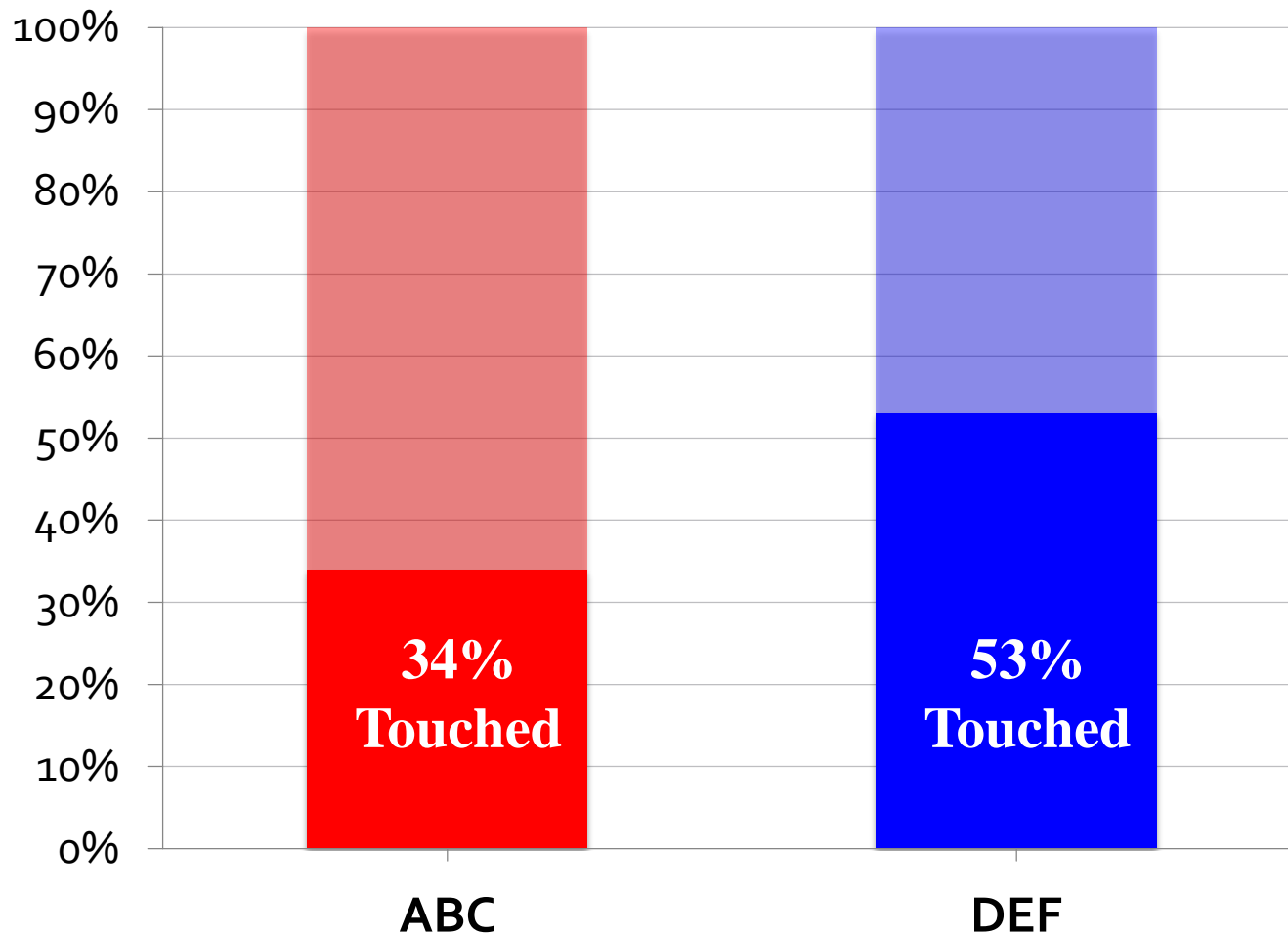
Inhibitory control

- Being able to sit quietly in school key to success
 - Doing what one is supposed to do
 - Inhibiting urge to do what one wants to do

Assessment of inhibitory control

- Put attractive toys in front of child
- Tell him or her not to play with them, instead play with crayons (boring in this context)

Intervention effects on inhibitory control



fMRI research

- Study differences in brain functioning among children
- N=75 (25 ABC, 25 DEF, 25 low-risk)
- In collaboration with Nim Tottenham

Neural functioning as assessed through electroencephalography (EEG)

As cortex develops, reduction in low band (theta power) activity and increase in high band (high alpha and beta power)

Neural functioning as assessed through EEG 8 years after intervention

Children in ABC intervention showed higher beta (12-20 Hz.) relative power than children in control intervention – this is consistent with more mature brain development.

Effective intervention

- Parent:
 - Sensitivity (3 years post-intervention)
 - Neural activity/ERP (3 years post-intervention) (Bernard)
 - Attachment script knowledge (Raby)
- Child:
 - Attachment
 - DNA Methylation (whole genome analyses (Hoye and Roth)
 - Emotion expression (2 years post-intervention) (Lind)
 - Language development (2 years post-intervention) (Raby)
 - Cortisol production (3 years post-intervention)
 - Executive functioning (3 years post-intervention)
 - Inhibitory control (Lind)
 - Set-shifting (Lewis-Morrarty)
 - Security (9-years-old) (Zajac)
 - ANS regulation (9-years-old) (Tabachnick)
 - Brain activation (9-years-old) (Valadez & Tottenham)

Implementing in community

- As a field, dismal results
- Few interventions implemented with adequate fidelity to model (Santa Ana, et al., 2008)

Microsoft Excel ribbon showing the **Home** tab. The ribbon includes sections for **Edit**, **Font** (Arial, size 10), **Alignment** (Wrap Text), and **Number** (Text). The active cell is **A1**, containing the text **In the Moment Fidelity Coding**.

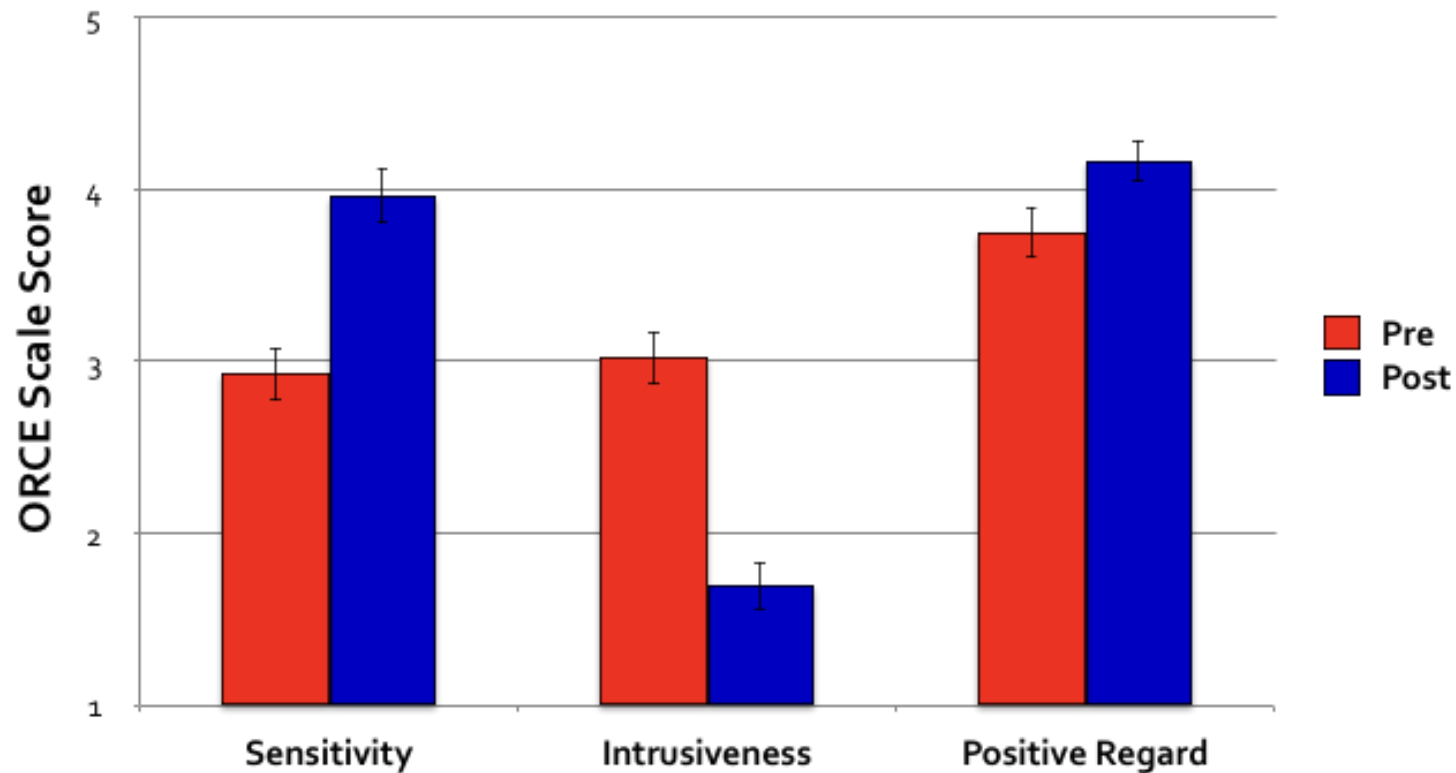
	A	B	C	D	E	H	I
1	In the Moment Fidelity Coding		Targets (Parent Behavior & Coach Comments)		Level		Overall
2			1 = Follows the lead		0 = 0 components		Total Number
3	Coder:		2 = Does not follow the lead		1 = 1 component		Total Number
4	Date coded:		3 = Delights in child		2 = 2 components		Number On Target
5	Coach:		4 = Follows the Lead with Delight		3 = 3 components		% On Target
6	Case:		5 = Nurtures				# Missed Opp
7	Session #:		6 = Does not nurture				% Missed Opp
8	Session date:		7 = Behaves in frightening way				On-Target Co
9	Time coded:		8 = Off-Target Comment				Ave. Commen
10			0 = No Comment				Ave. Commen
11							
12	(Time) Description of Parent's Behavior	Behavior Target (1 - 7)	(Time) Parent Coach's response	Response Target (0 - 8)	Response Level (0 - 3)		
13	(0:00) CG says "get it" and makes beeping sound	2	(0:04) "Yeah so she's making the toy beep and you say beep beep, that's perfect"	2	1		
14	(0:05) Child pushes button on toy, CG pushes button on a similar toy	1	(0:08) "And she's pushing the button on hers, and you push the button on yours, great following her lead."	1	2		
15	(0:10) CG rotates toy and moves her head, and CG mimicks rotation and head movement, smiling	4	(0:13) "And even stuff like that where she goes-" (mimicks head movement)	1	0		
	(0:15) Ch brings toy up to her ear. CG says	4	(0:16) "Yeah. and she picks it up like a phone and	1	1		

[illegible]

Alignment of screening, training, supervision, fidelity monitoring (with regard to active ingredient)

- Screening
- Training
 - Introduce on day 1 of training
- Supervision
 - 30 minutes of supervision on in-the-moment comments weekly for 1 year
- Certification
 - Must meet criteria (e.g., 1 comment per minute, at least 1 component per comment, etc.)
- (Maximizing likelihood of success)

Pre- to post-intervention changes in parent behavior



Grant support

NIH R01 MH074374

NIH R01 MH052135

NIH R01 MH084135

Support from Edna Bennett Pierce

Information about upcoming training

Date: May 6th and May 7th, 2019

Location: Hotel Diplomat, Strandvägen 7C, Stockholm

For information about the local implementation and Sweden-specific questions:

Anna Amilon, anna.amilon@live.se

For information about ABC, training procedures, cost, general questions:

Caroline Roben, croben@psych.udel.edu

For general information about ABC:

www.abcintervention.org