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# RETURNING TO THE REALM OF RELATIONSHIPS

February, 2012



Child Health Intervention and  
Longitudinal Development



# Purpose

- Determinants of health
  - Social Support
  - Healthy Child Development
- Supporting parent-infant relationships
- Attachment
- Toxic stress
  - Video interaction
- Exemplar study
- Implications for:
  - Parental education
  - Social connectivity



# Disclaimers



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- I have a good relationship with my mother.
- I had PPD.
- I don't blame mothers or parents.



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# DETERMINANTS OF HEALTH





# Determinants of health

- Socioeconomic environment
  - Income, income distribution, social status
  - Social support networks
  - Education
  - Employment and working conditions
  - Social environments (societal values & rules)
- Physical environment
- Healthy child development
- Personal health practices
- Individual capacity & coping skills
- Biology and genetics
- Health services
- Gender & culture

[www.publichealth.gc.ca](http://www.publichealth.gc.ca)



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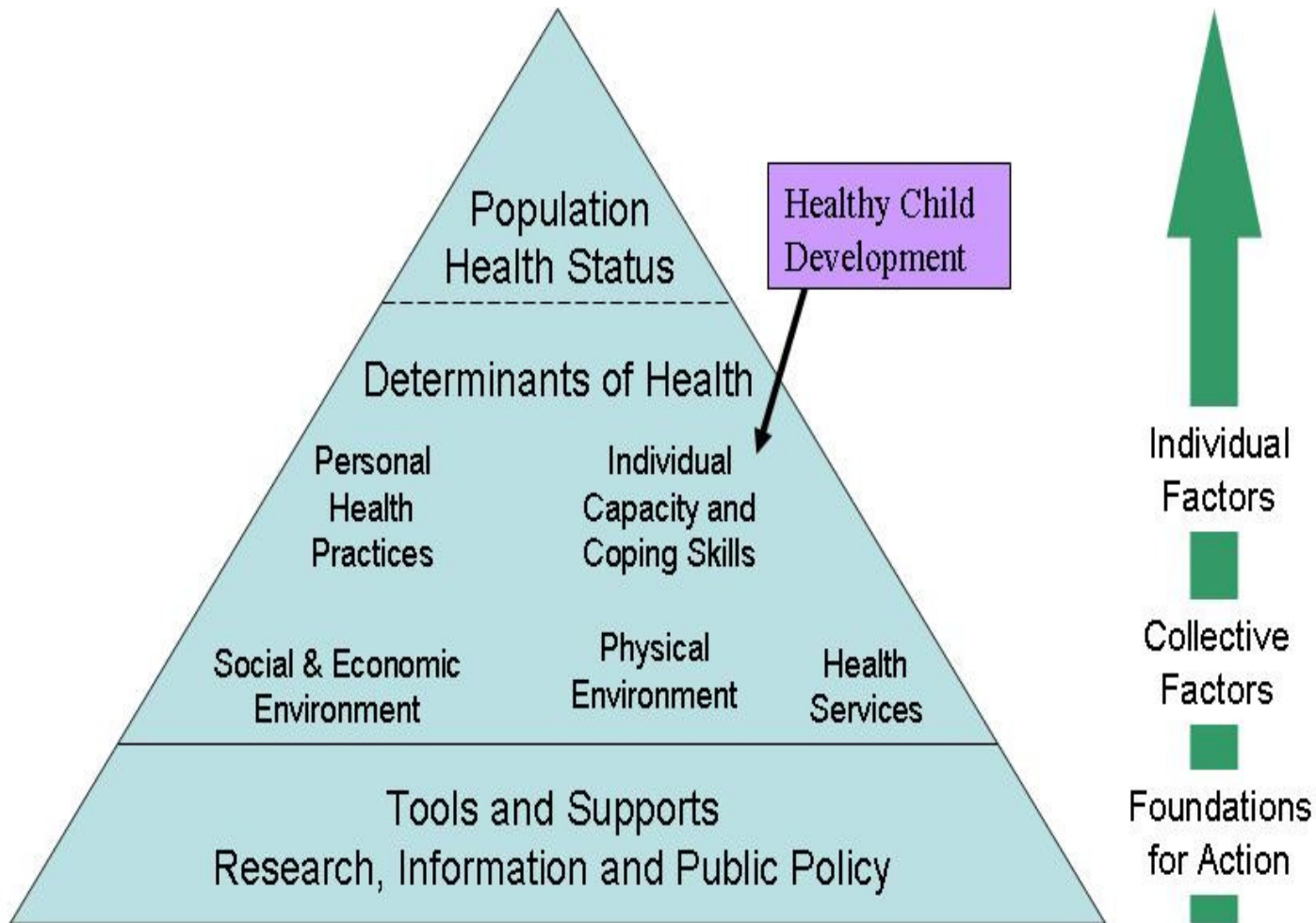


Figure 1. Population Health Framework (Minister of Supply and Services Canada 1994)





# Social support

- Advice, guidance
- You're worth it!
- I understand
- Help with household, child care

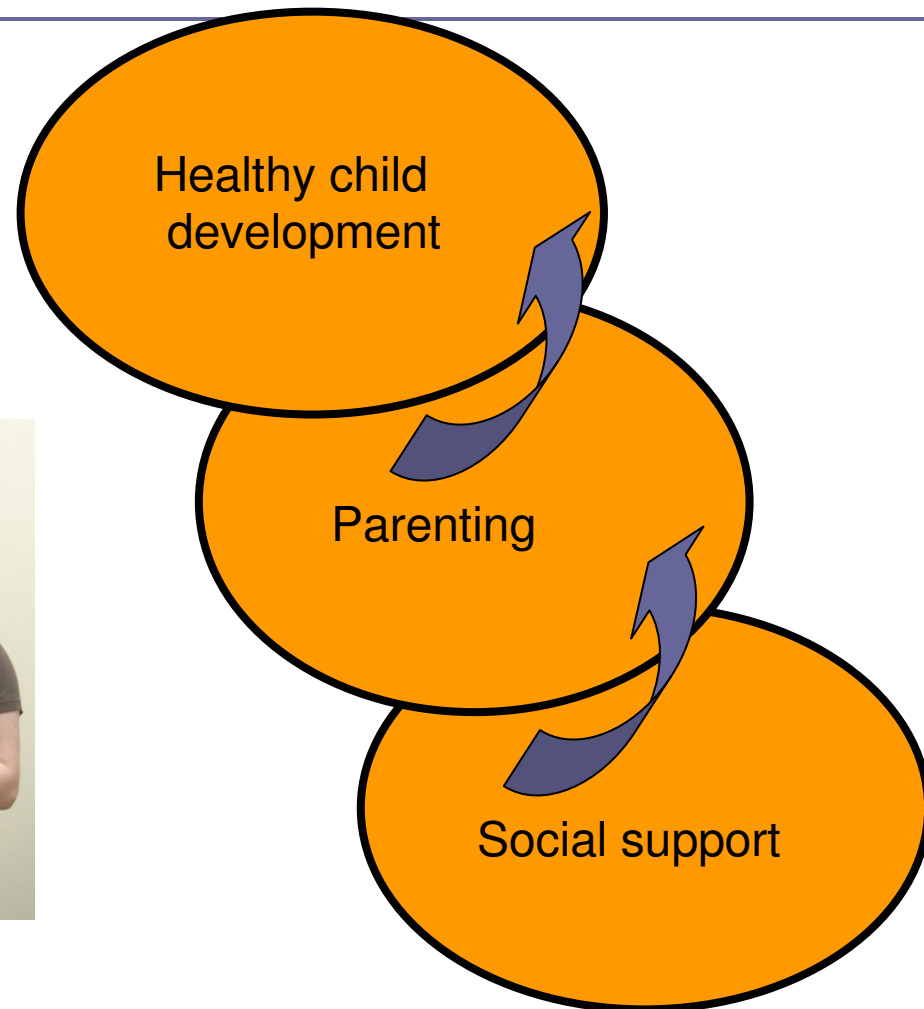
Social Support: interactions with family members, friends, health professionals that communicate information, esteem, aid and understanding





# Determinants of health

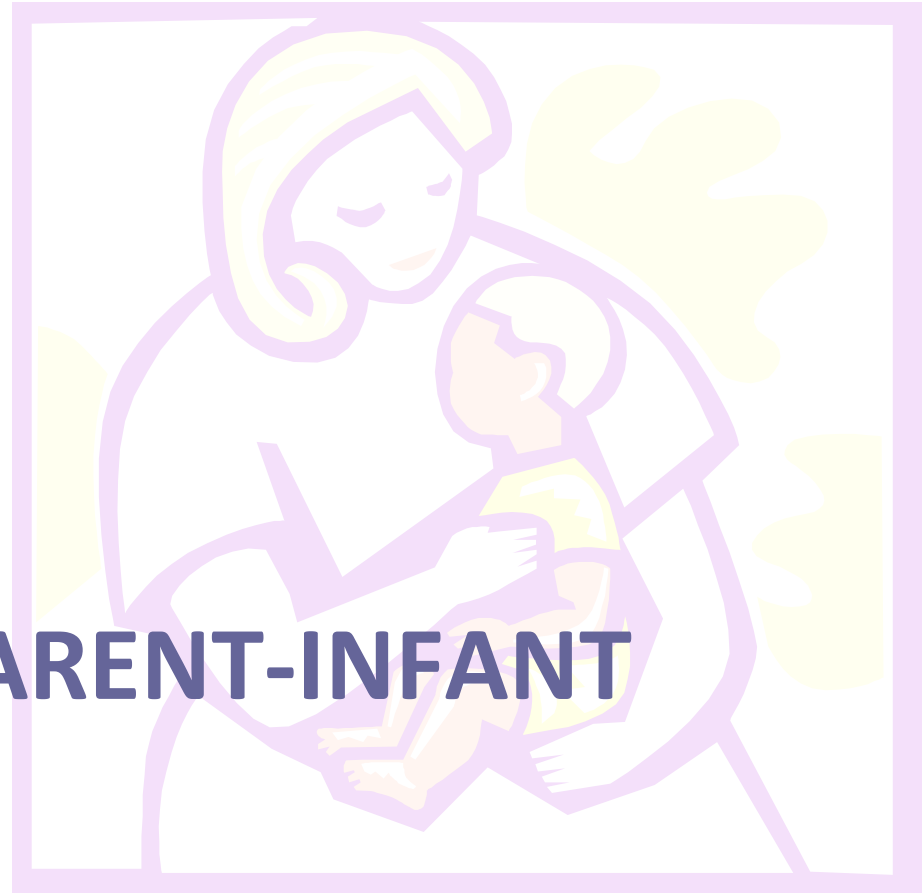
- Healthy child development
- Social support







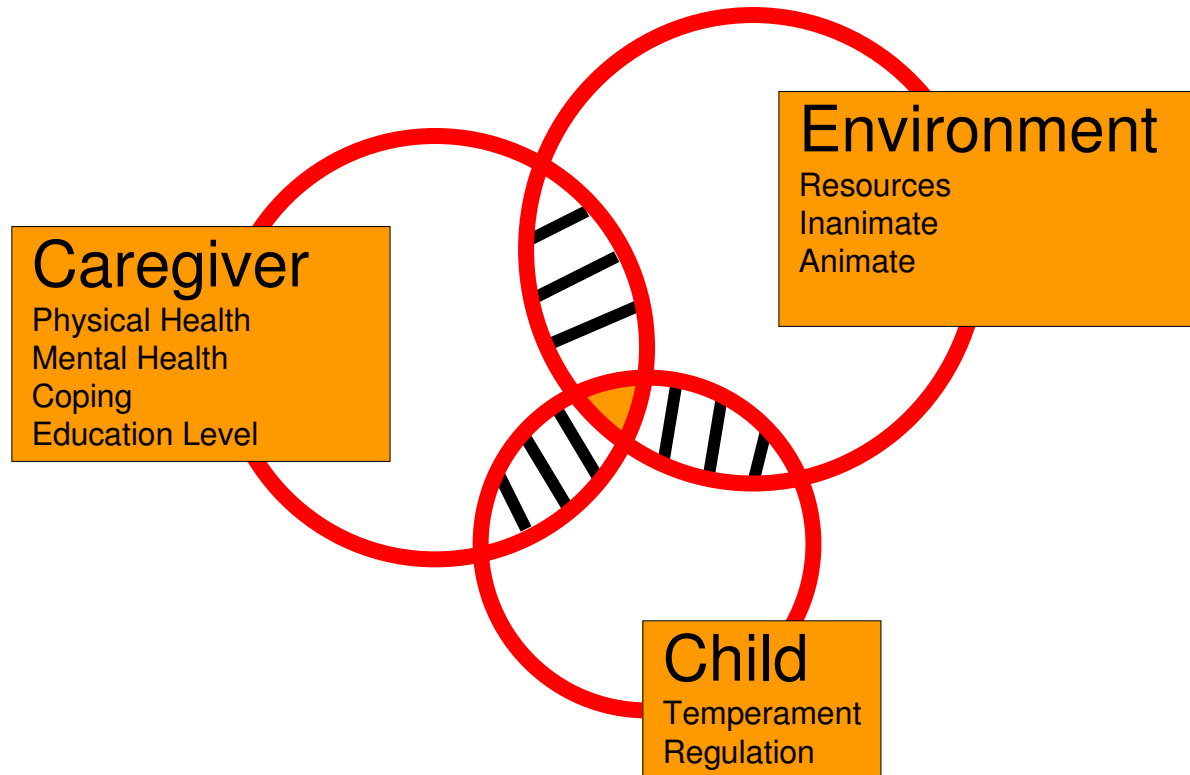
# SUPPORTING PARENT-INFANT RELATIONSHIPS



# Child Health Assessment Model (Barnard, 1976)



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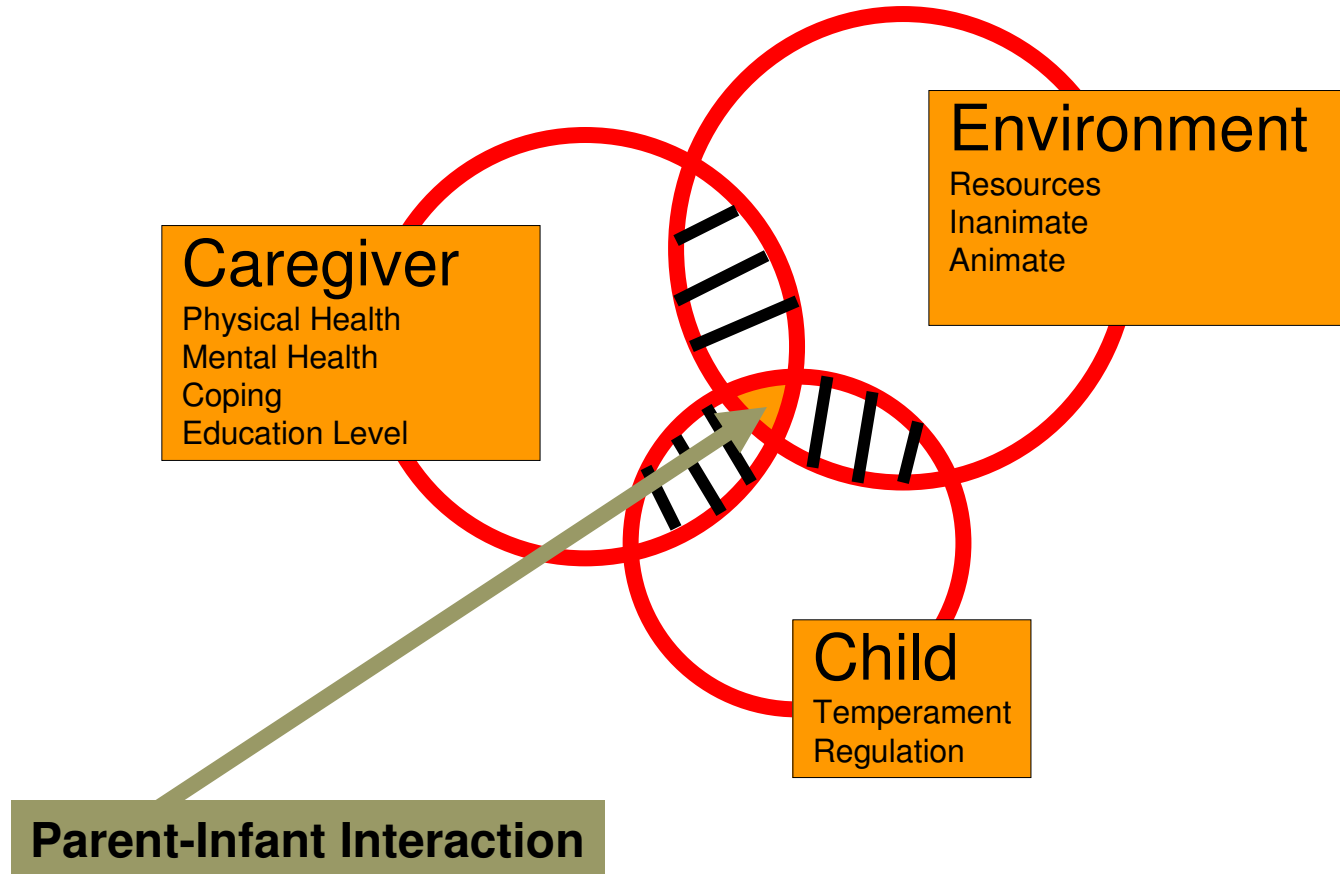


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# Child Health Assessment Model (Barnard, 1976)



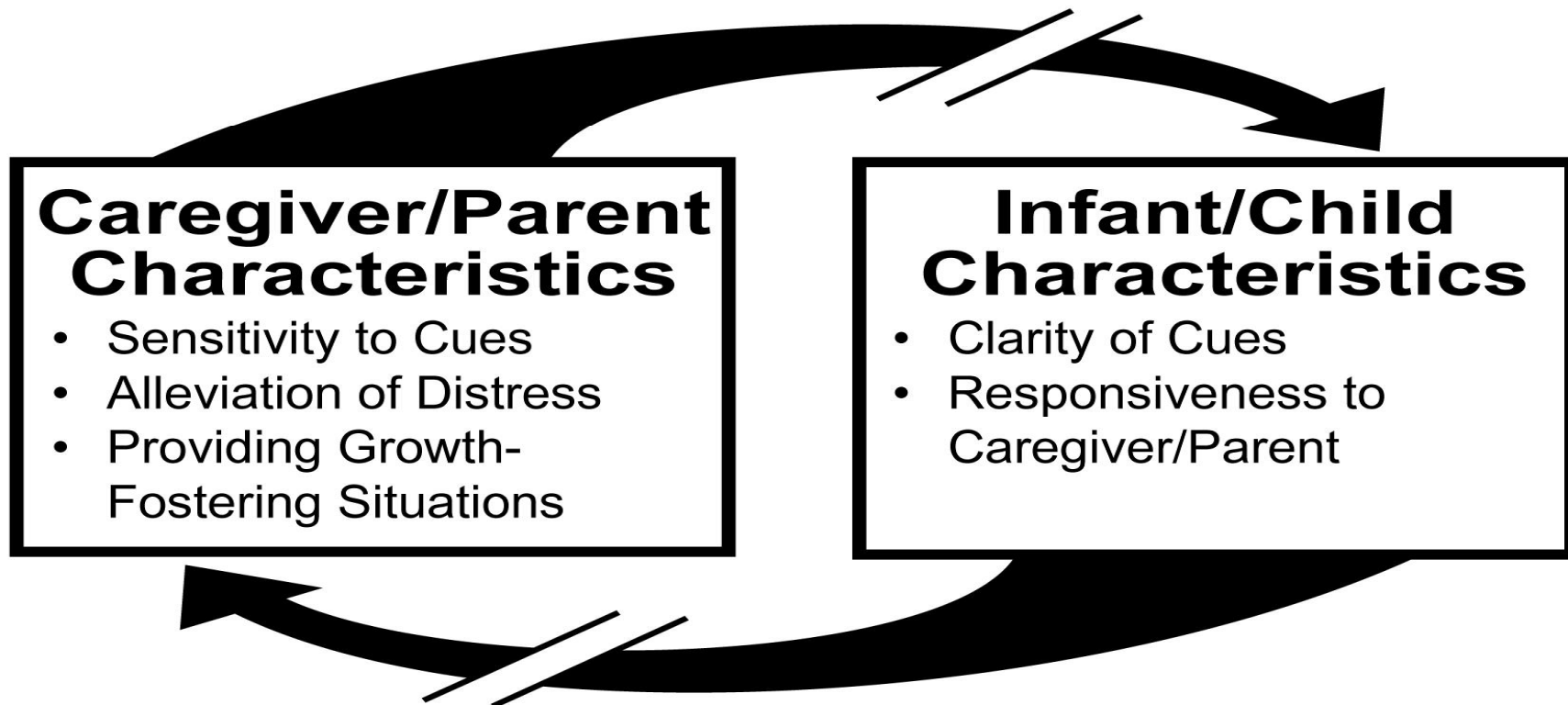
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# The Barnard Model





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**Adult sensitivity is any pattern of behavior that pleases the infant and increases the infant's comfort and attentiveness and reduces its distress and/or disengagement (*Crittenden, 2011*).**





# ATTACHMENT





# What is an Attachment Figure?

- Protection and comfort
- Secure base and safe haven
- Person who is there when you need...
- Long-term intimate, reciprocal relationship
- Affectively charged
- Person-specific
- Basis for physical and psychological survival

From Crittenden A&P, 2008







# Secure attachment

## □ Infants:

- Use caregiver as secure base from which to explore
- Display clear preference for comfort received from caregiver
- Greet caregiver with smile or vocalization and will initiate contact

Cassidy & Shaver; Van Ijzendoorn, 1992



# Insecure attachment



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Primary caregiver :

- Insensitive
- Disengaged
- Uninvolved
- Emotionally flat
- Controlling



Infants develop:

- Self-protective strategies



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# Insecure attachment-infancy

## Avoidant:

- Show signs of ignoring, looking or turning away from caregiver
- make no effort to maintain contact with caregiver

## Ambivalent:

- Seek contact with caregiver then resist contact angrily once achieved

Cassidy & Shaver, Handbook of Attachment





# Attachment trajectories

Over the lifespan, insecure attachment is associated with:

- ❑ Problems with intimacy and affection
- ❑ Trust issues
- ❑ Low self-esteem
- ❑ Difficulty maintaining relationships
- ❑ Behavioural, academic and mental health problems





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# ATTACHMENT DISORGANIZATION



Edited by  
Judith Solomon  
Carol George



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# Danger is the problem

- Insecure attachment is not the problem...danger is the problem
- Anxious/insecure attachment is the solution

Anxious/insecure attachment is the child's strategy for eliciting protection and comfort from the parent.





# Normative distributions

- Type A (Insecure-Avoidant; 10-20%)
- Type B (Secure; 65%)
- Type C (Insecure-Ambivalent; 10-15%)
- Type D (Disorganized-drawn from A&C; 0-15%)

(Ainsworth; Crittenden; Main)



# Secure attachment



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Sensitivity and  
parental availability  
are key determinants  
of secure attachment

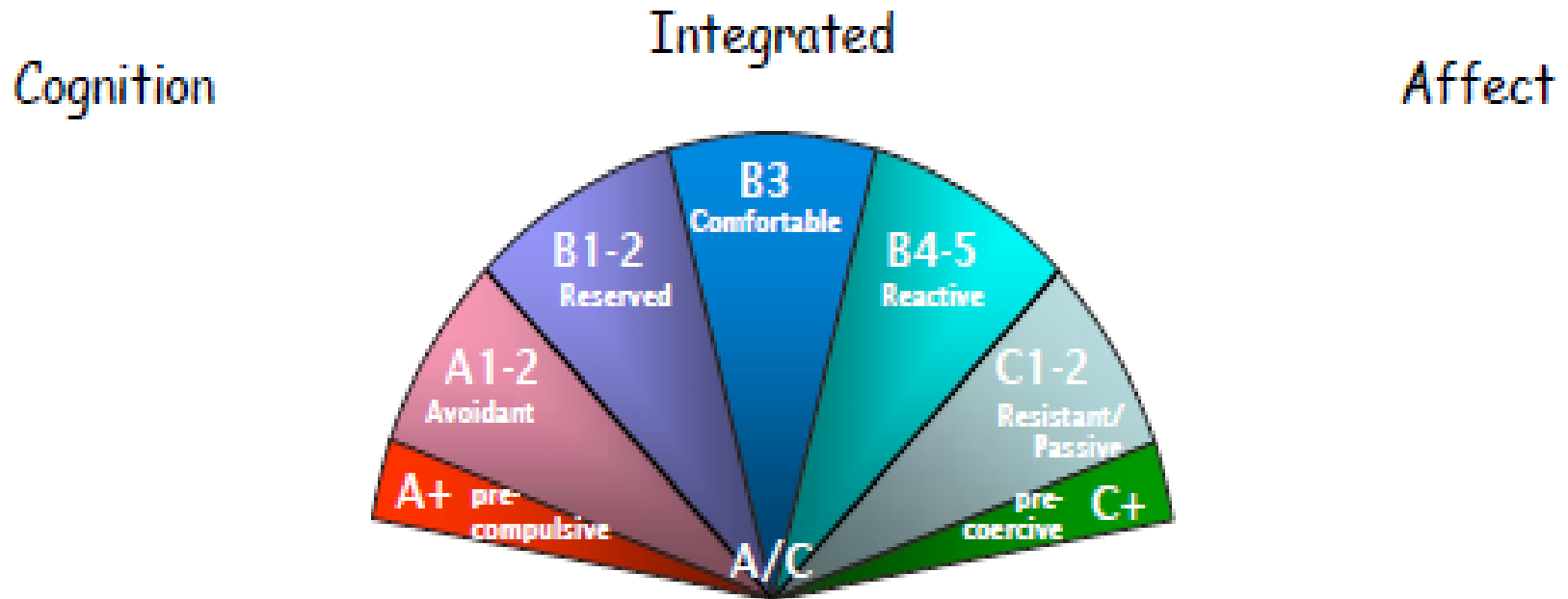
Cassidy & Shaver (1999),  
Handbook of Attachment



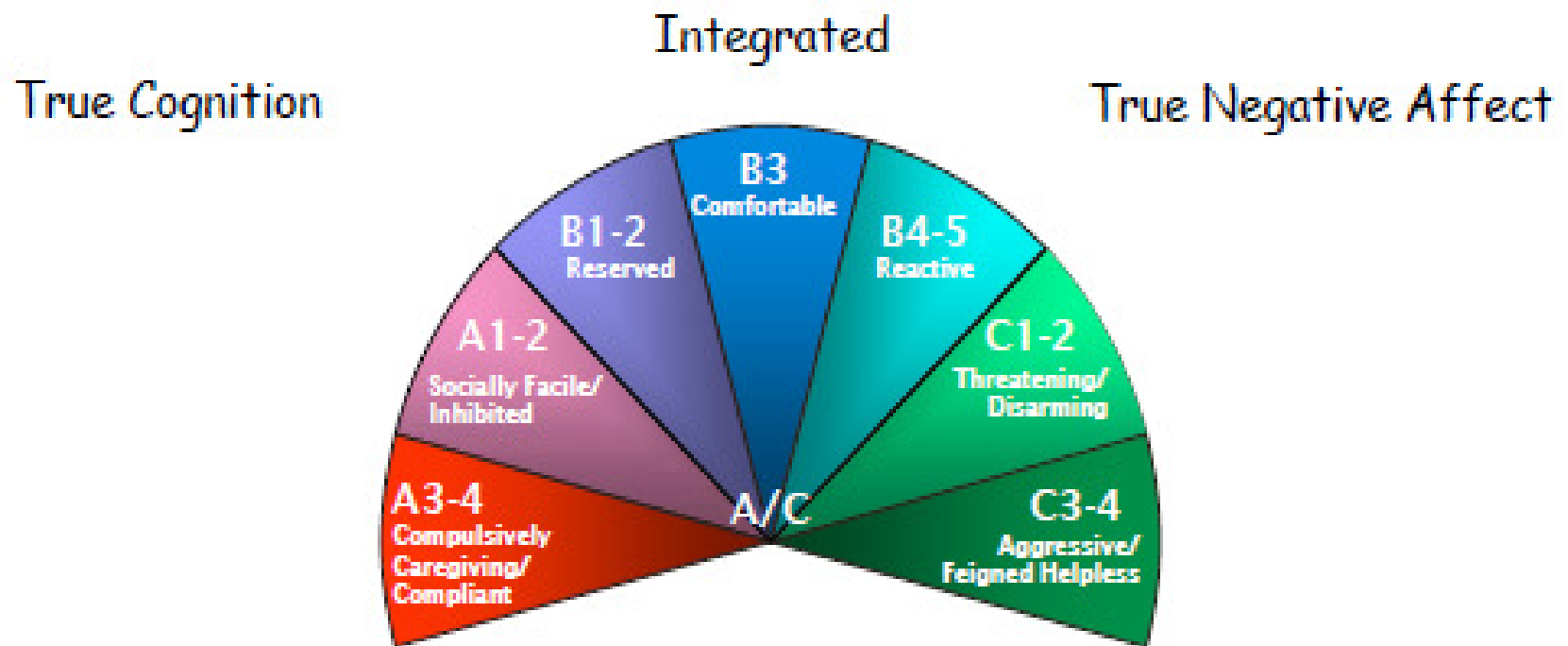
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# DMM Patterns of Attachment in Infancy

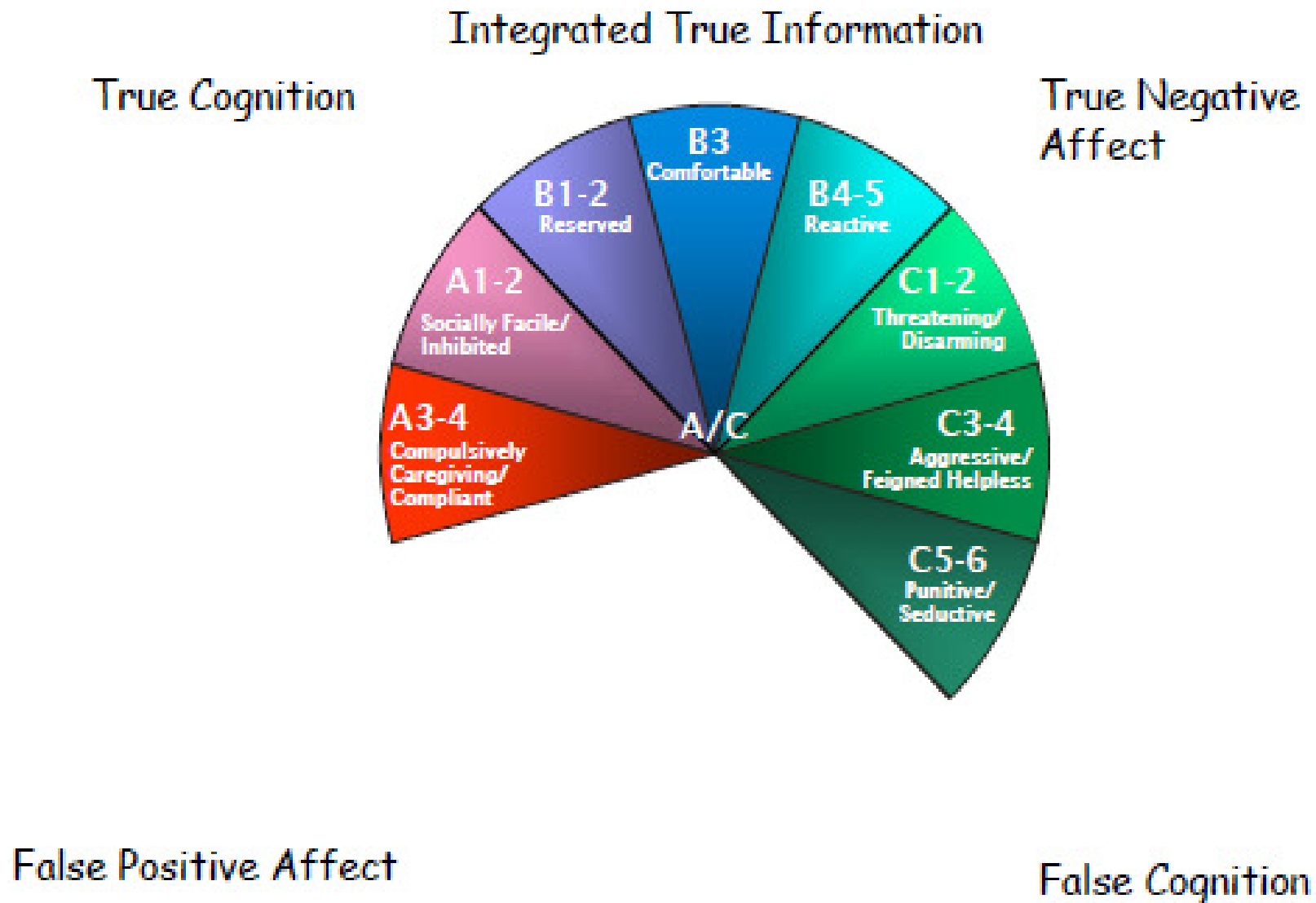


# DMM Patterns of Attachment in the **Preschool Years**

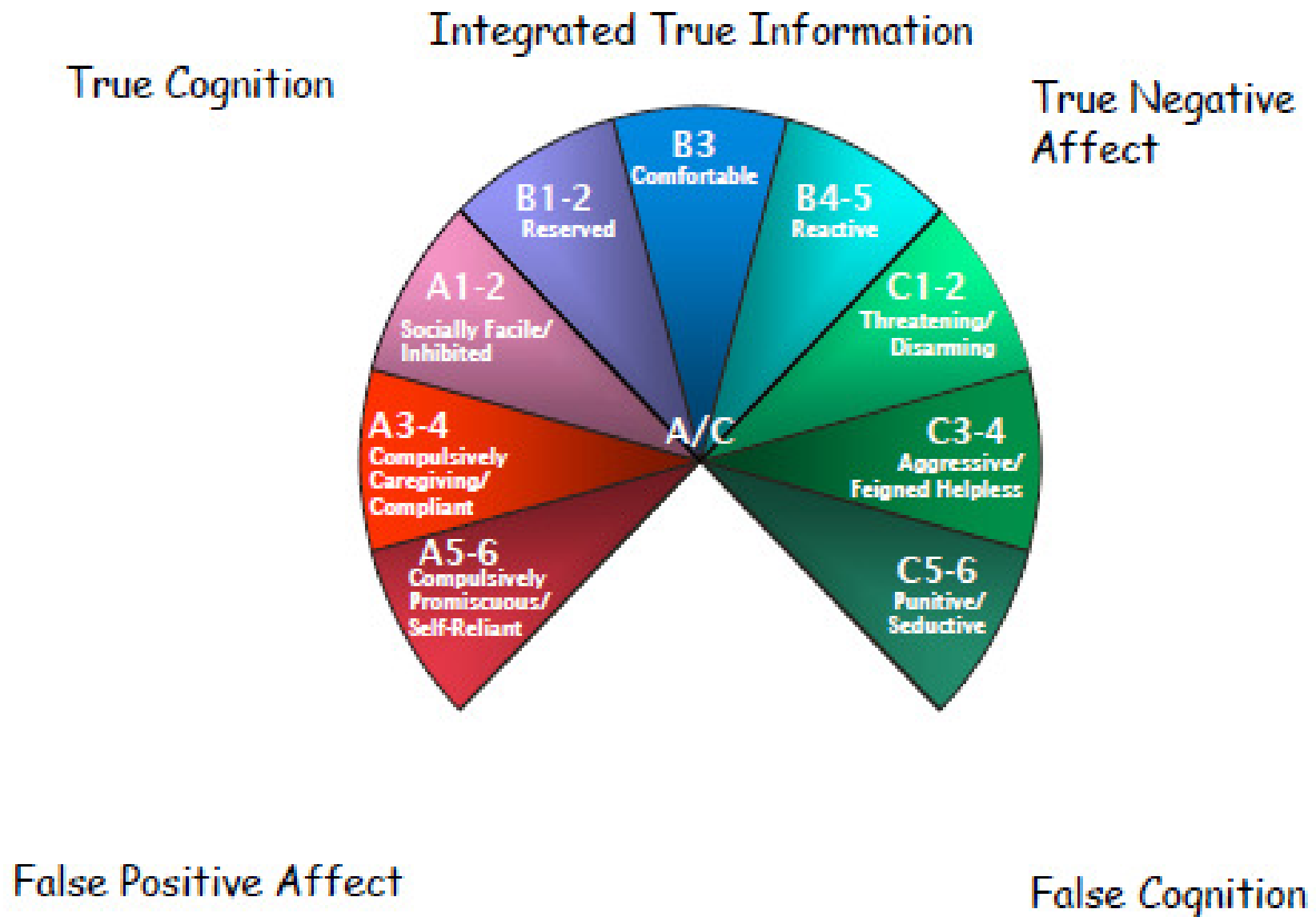


False Positive Affect

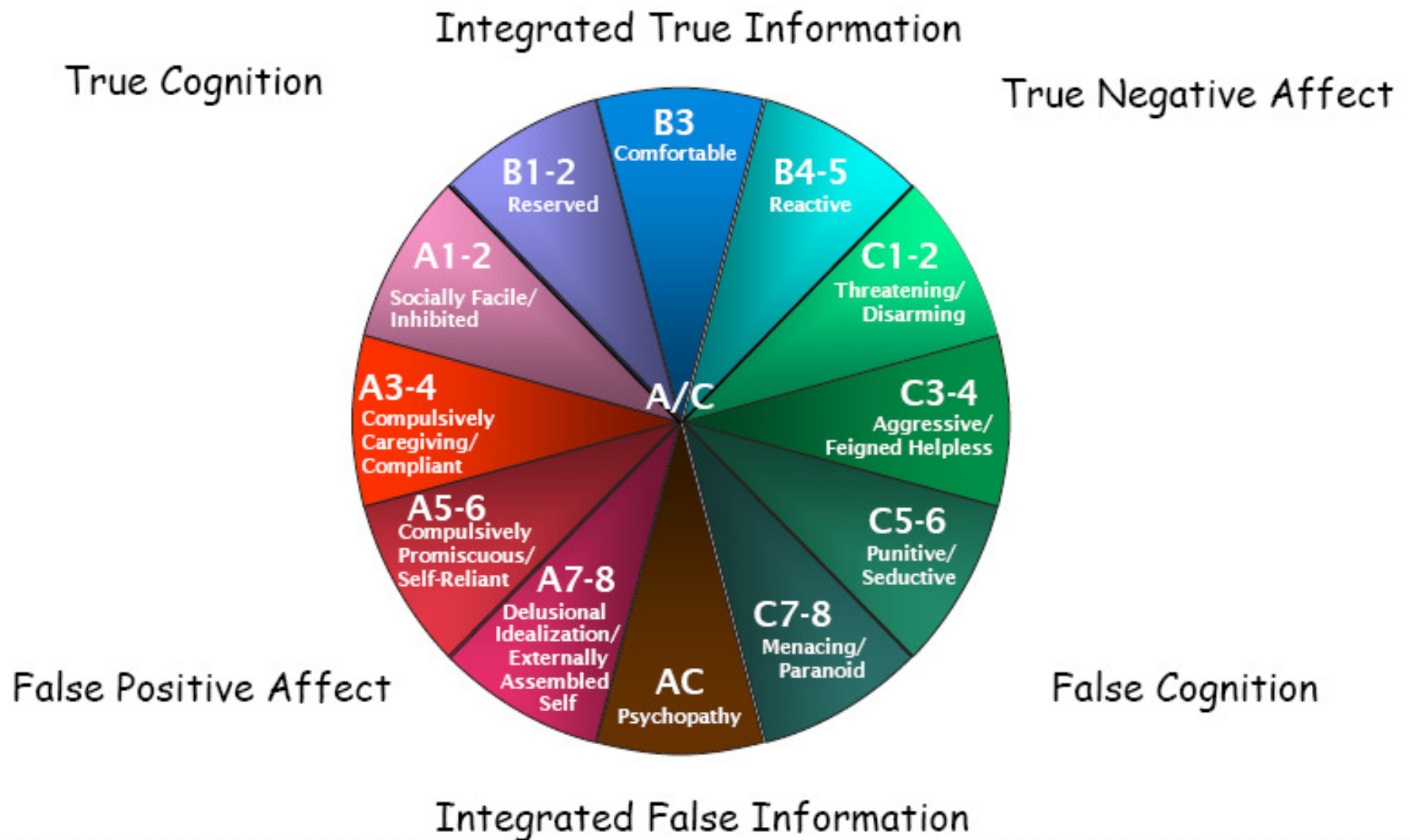
# DMM Patterns of Attachment in the School Years



# DMM Patterns of Attachment in Adolescence



# DMM Patterns of Attachment in Adulthood



# What interferes with maternal sensitivity?

Attachment & trauma history

Mental health problems

Family violence

Maternal addictions



Current  
or Past  
stress





# TOXIC STRESS



**TOXIC STRESS RESPONSE:  
THE FACTS**

**Positive**

Brief increases in heart rate,  
mild elevations in stress hormone levels.

**Tolerable**

Serious, temporary stress responses,  
buffered by supportive relationships.

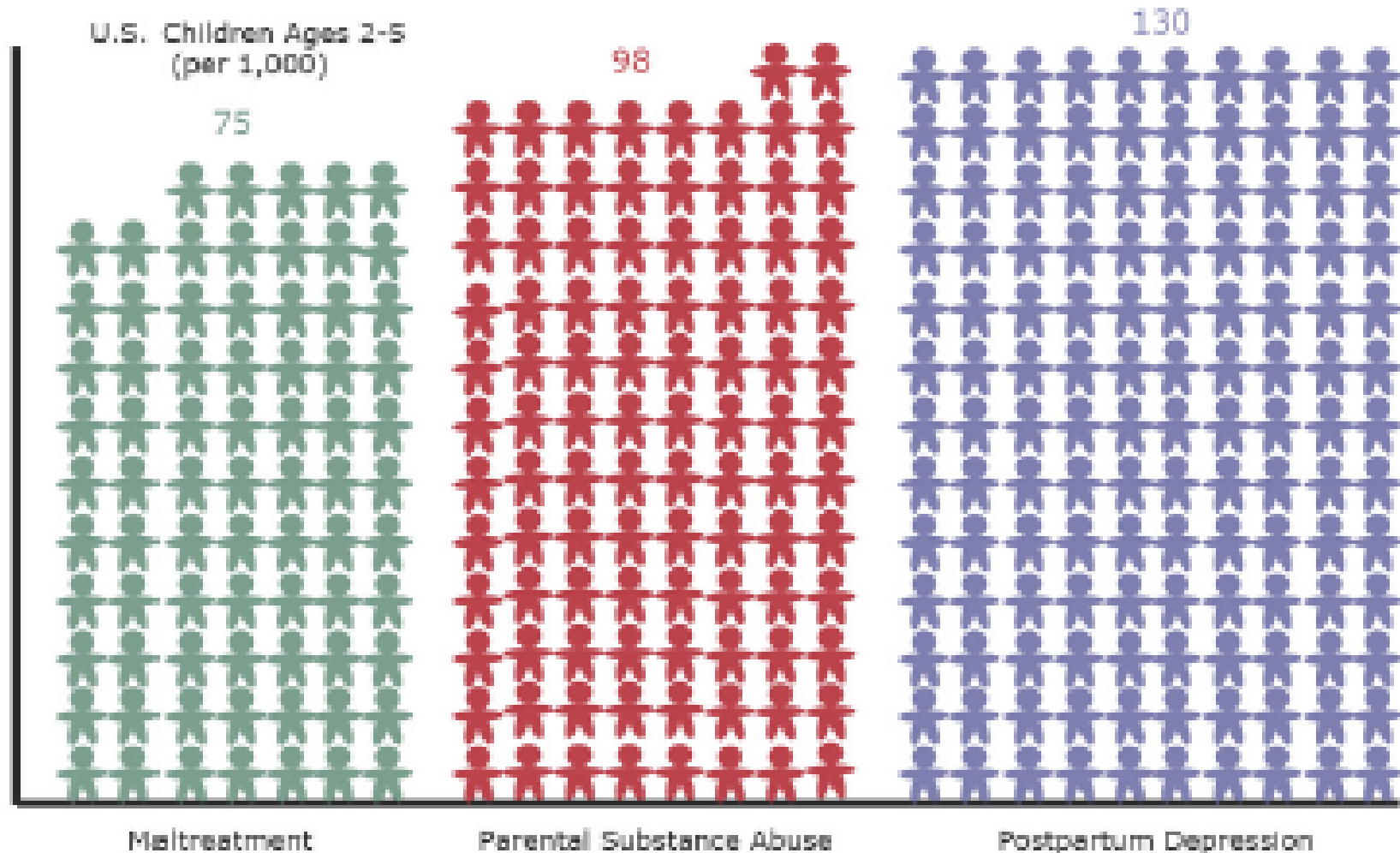
**Toxic**

Prolonged activation of stress response systems  
in the absence of protective relationships.





## Sources of Toxic Stress in Young Children



Source: Finkelhor et al. (2005)

Source: SAMHSA (2002)

Source: O'Hara & Swain (1996)

# Maternal-child interaction & self-regulation

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Critical aspect of regulating a baby's states involves modulating the intensity of stimulus (stress) to engage and sustain the baby's attention i.e not trigger the impulse to cry, avert gaze, or shut down.



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# States of arousal

- ❑ Flooded (e.g. crying)
- ❑ Hyper-alert (e.g. fussy)
- ❑ Calmly focused & alert
- ❑ Hypo-alert
- ❑ Drowsy
- ❑ Asleep





# Mothers are “hidden” regulators of their infants’ endocrine & nervous systems





# VIDEO



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# EXEMPLAR STUDY



## **Cortisol patterns of depressed mothers and their infants are related to maternal–infant interactive behaviours**

N. Letourneau<sup>a,b</sup>, B. Watson<sup>b</sup>, L. Duffett-Leger<sup>b</sup>, K. Hegadoren<sup>c</sup> and  
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<sup>b</sup>*Child Health Intervention and Longitudinal Development, University of New Brunswick,  
Fredericton and University of Calgary, Alberta, Canada;* <sup>c</sup>*Faculty of Nursing, University of  
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*(Received 25 April 2011; final version received 12 November 2011)*

**Background:** Postpartum depression (PPD) reduces maternal–infant interaction quality, stresses infants and mothers, and is linked to adverse child social–emotional and cognitive developmental outcomes. **Objectives:** A hypothesised

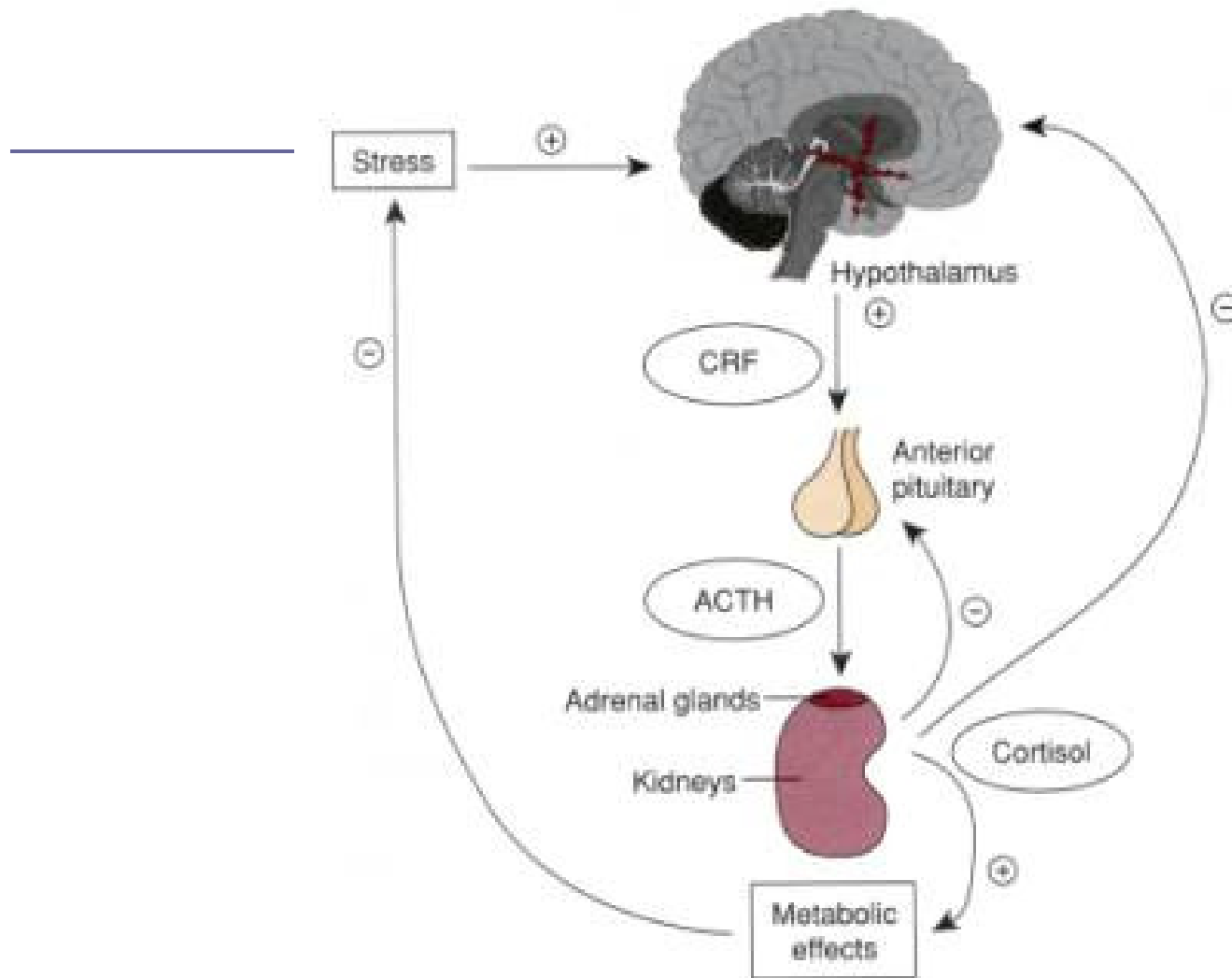


# Depressed mothers

- negative perceptions of normal infant behavior
- ↓ likely to pick up on infants' cues or respond to needs
- ↓ emotionally expressive
- ↓ affectionate and ↑ anxious
- ↓ sensitive and appropriate interactions
- ↑ negative in their play
- speak more slowly and ↓ often









# Normal cortisol patterns

- Cortisol rhythm characterized by high morning concentrations, followed by a decrease over the day with a small rebound before sleep.
- Develops over the 1<sup>st</sup> year of life, typically established by 9 mos (range 2 weeks to 9 mos.)





# Overactivation of HPA

- ❑ Maladaptive: fear behaviours and hypervigilance
- ❑ In children, altered cortisol linked to reduced cognition, memory, attention, self-control, behavioral problems
- ❑ Cortisol is neurotoxic, known to interfere with normal maturation of brain and other body systems



# *Infant* cortisol patterns: Predictors of alterations



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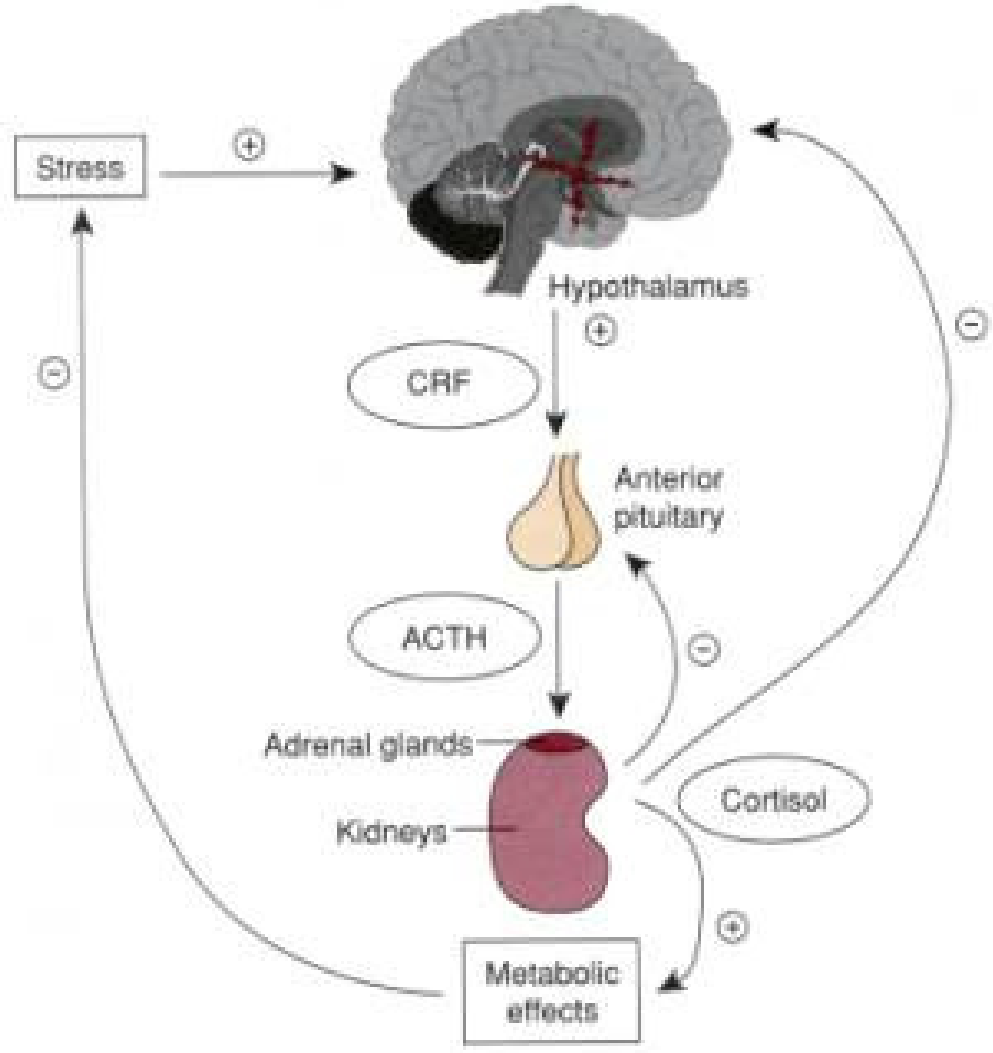
- ❑ Deprived caregiving (Romanian orphan)
- ❑ Milder variations in care (day care)
- ❑ Family adversity (low birth weight, income, single parenthood, hostile maternal behaviours)
- ❑ Preterm birth, temperament, birth complications
- ❑ Infants, 3 year olds, 7 year olds, 13 year olds of depressed mothers display higher cortisol levels than children of non-depressed mothers
- ❑ Months of exposure to PPD in child's first year of life is potent predictor of ↑cort levels



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Maternal Child Interaction Quality?





# Research Question

What is the relationship between infant diurnal salivary cortisol levels and environmental, maternal, and infant factors and maternal interactive behaviours?





# Hypothesis

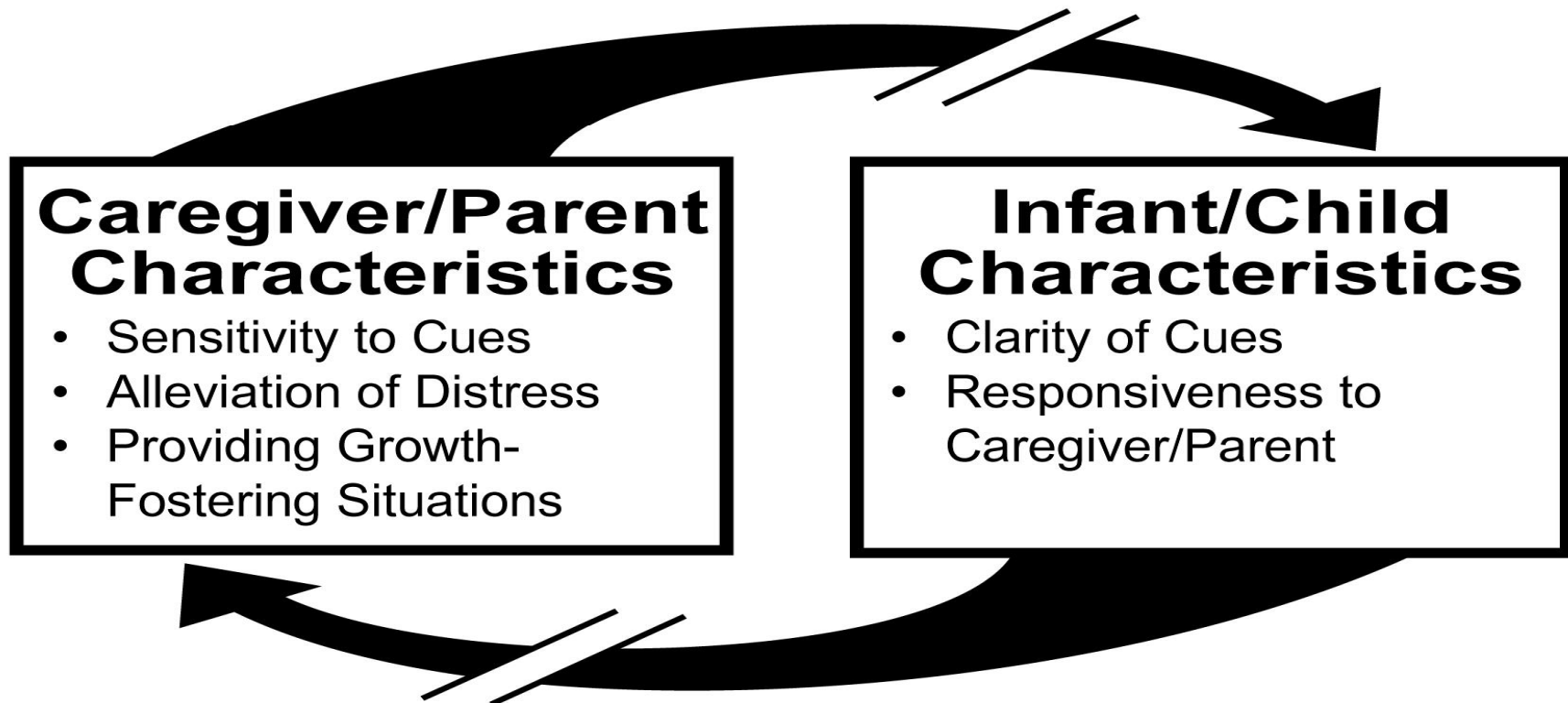
Higher infant diurnal salivary cortisol patterns will be associated with:

- ❑ **environmental** factors (i.e. low income level, high parity, more difficult life circumstances, dyadic adjustment,
- ❑ **maternal** factors (i.e. greater depression severity),
- ❑ **infant** factors (i.e. age, admission to NICU, preterm birth, birth complications, difficult infant temperament), and
- ❑ **maternal interactive behaviours** (e.g. sensitivity to cues, responsiveness to distress, social emotional and cognitive growth fostering activities).





# The Barnard Model







# Methods

- A secondary analysis of data from a randomized controlled trial of an intervention for mothers with symptoms of PPD (Letourneau et al., 2011)
- Baseline data (prior to randomization) were used.
- N=53 mother-infant dyads





# Inclusion criteria

## Mothers

- $\geq 12$  on EPDS
- 19 to 45 years
- Uneventful pregnancies
- No comorbid mental health problems

## Infants

- 3 to 12 months of age
- $\geq 32$  weeks gestation
- No chronic health problems
- No medication with corticosteroids





# Sample

Age of mothers:  $X=29$   
( $SD=5.23$ )

Low-income: 29%

Depression score:  $X=15.19$   
( $SD=5.56$ )

Age of child:  $X=5.18$   
months ( $SD=2.86$ )

Neonatal care: 31%

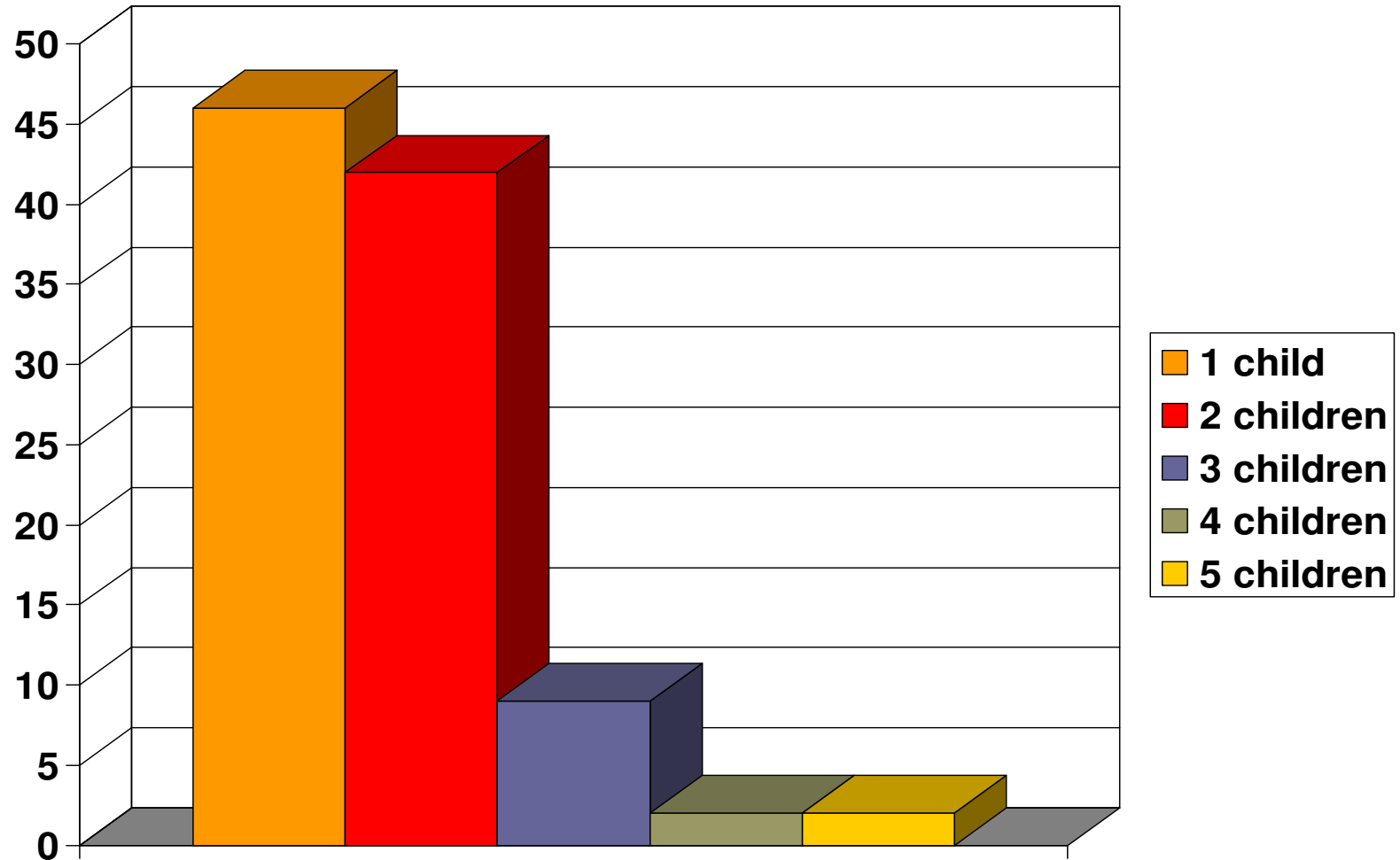
Birth complications: 50%

Premature birth: 10%





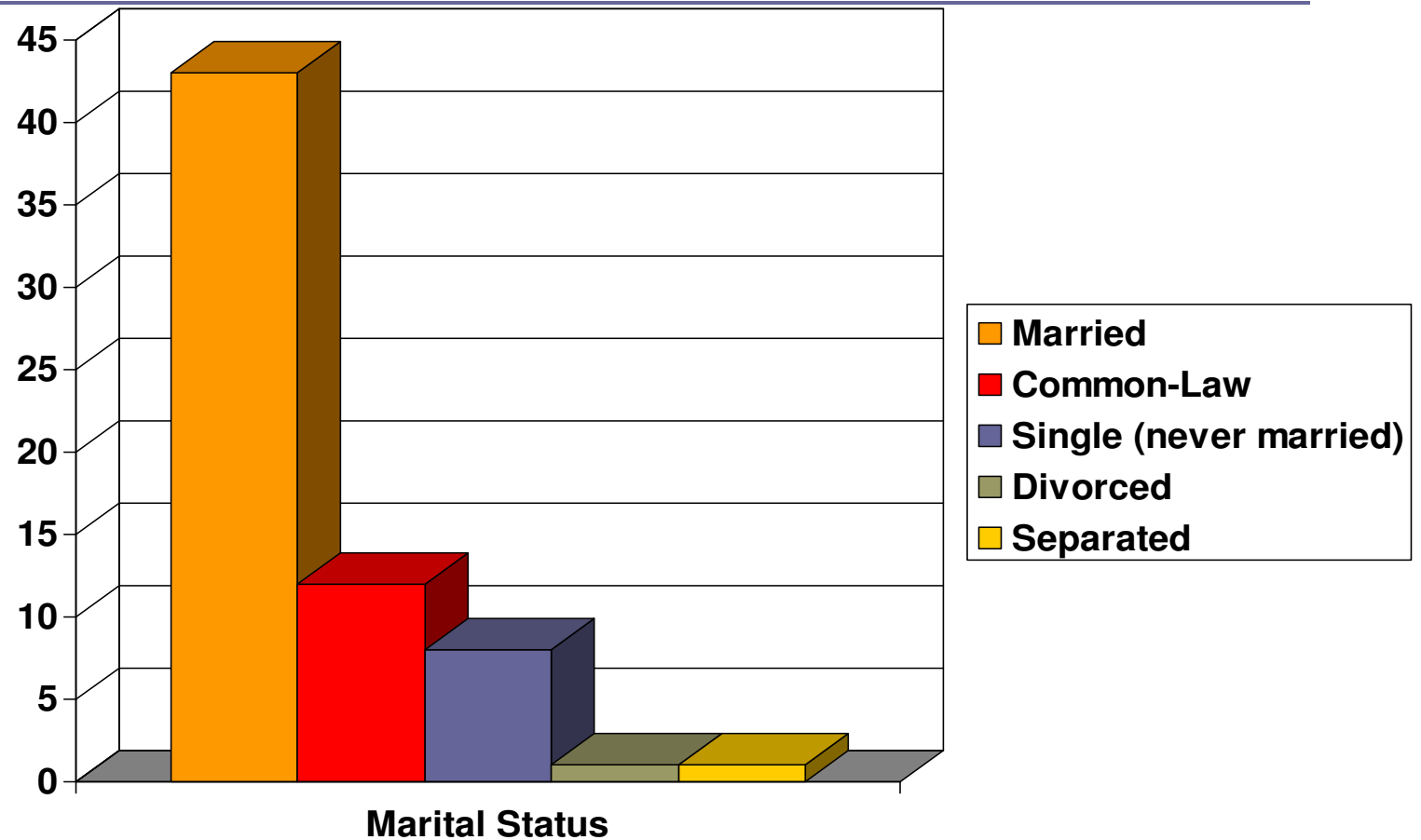
# Number of children



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# Marital status





# Predictors

## ***Infant***

- ❑ Preterm (dichotomous)
- ❑ birth complications (dichotomous)
- ❑ NICU (dichotomous)
- ❑ ICQ (continuous)
- ❑ Age (control)

## ***Interaction***

- ❑ Videotaped NCATS (continuous & dichotomous)

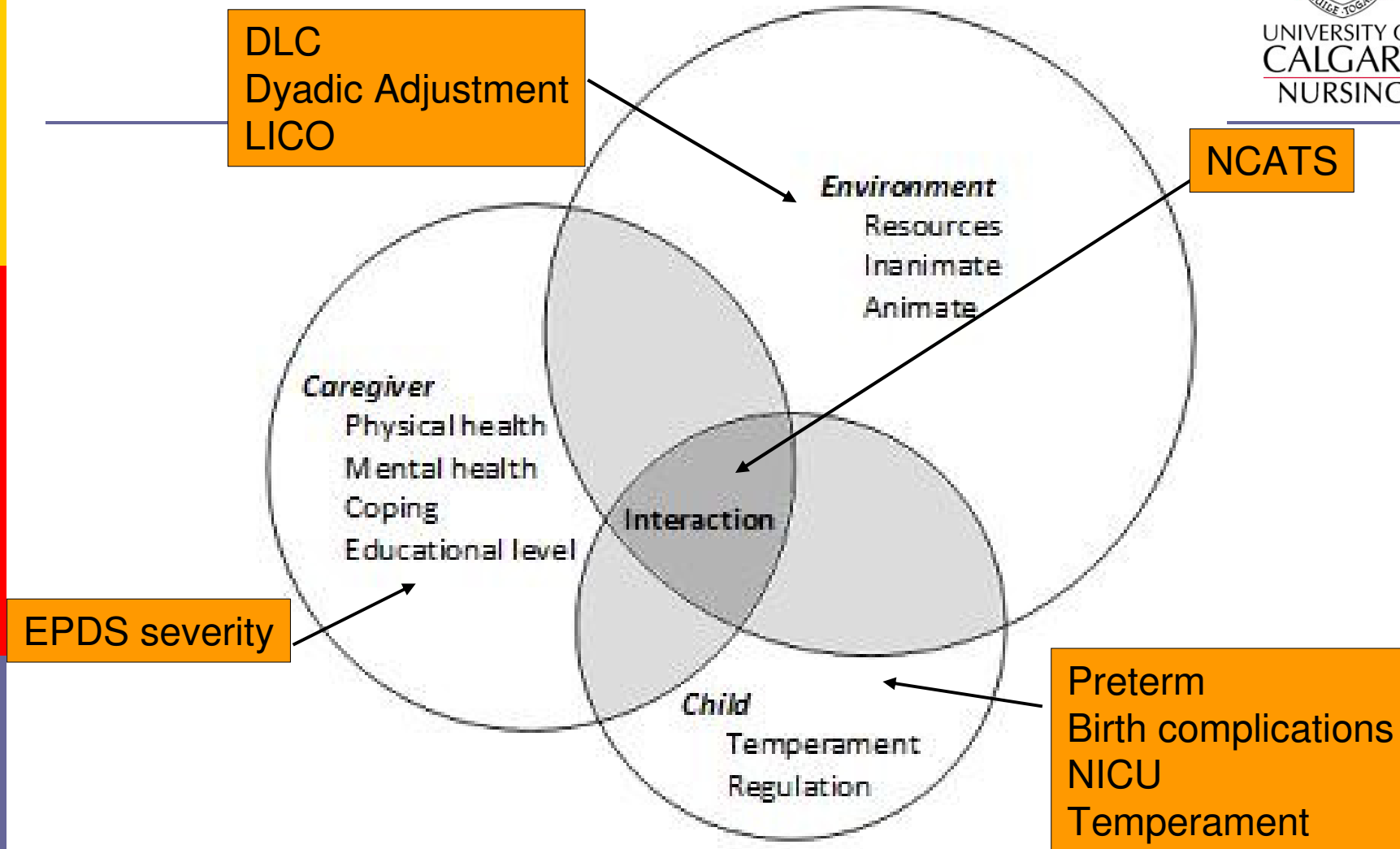
## ***Maternal***

- ❑ EPDS (symptom severity-continuous)

## ***Environment***

- ❑ DLC (continuous)
- ❑ Dyadic adjustment (continuous)
- ❑ LICO (dichotomous)





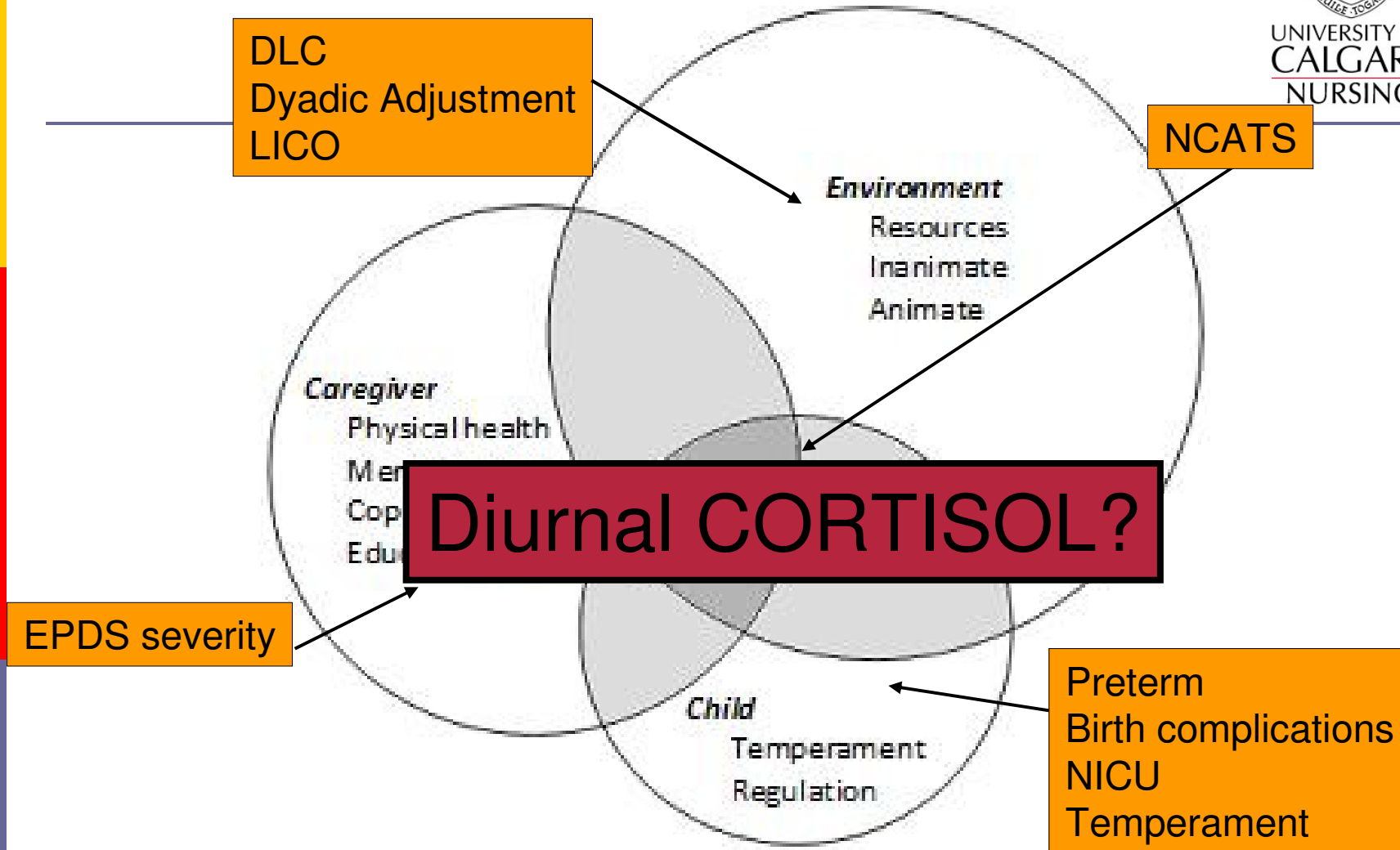


# Salivary cortisol

- 4 samples of were obtained over the course of one day.
- (1) morning within 15 to 30 minutes of wakening defined at waking between 6 and 9 am; (2) mid-morning between 10 and 11am; (3) mid-afternoon between 3 and 5 pm; & (4) evening just before mothers' bed time and putting the infant to bed for the night.

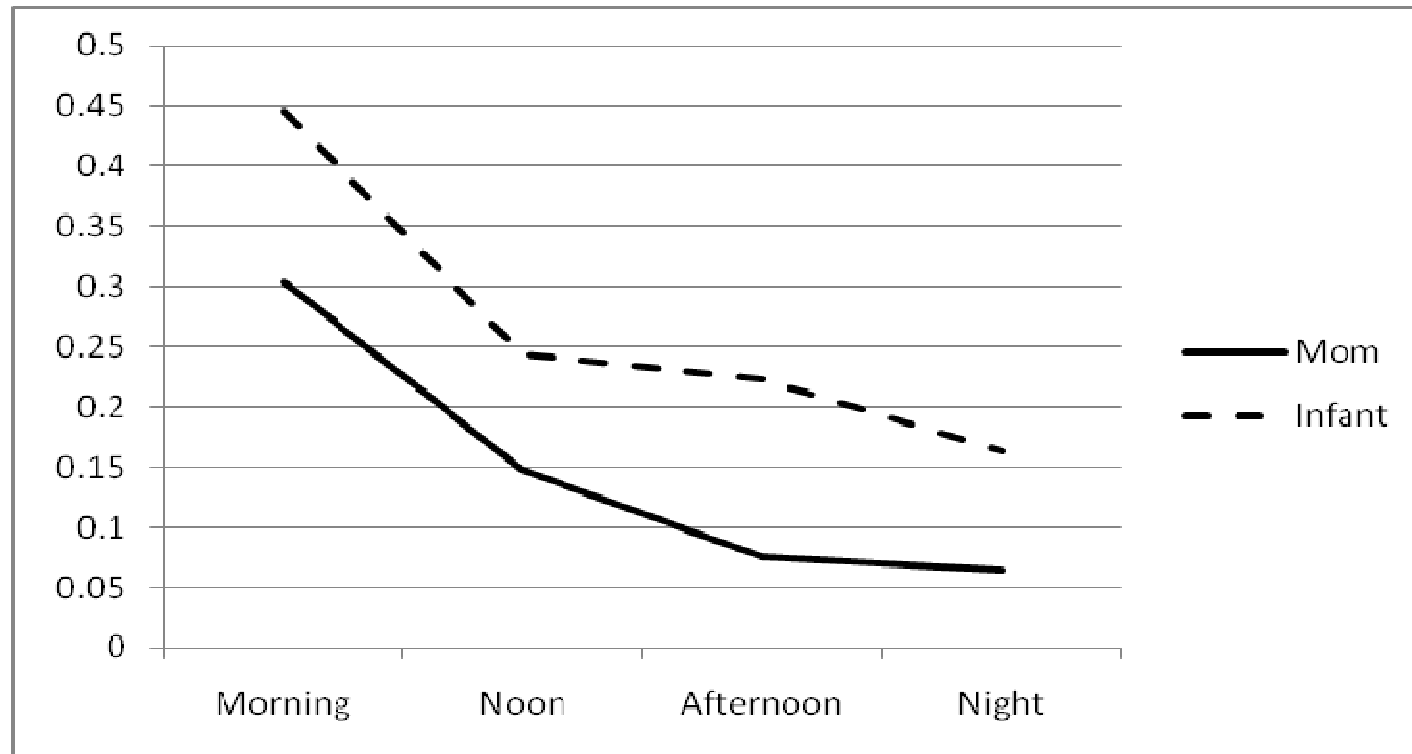








# Diurnal Rhythm





NCATS

DLC  
Dyadic Adjustment  
LICO

Environment  
Resources  
Inanimate  
Animate

Caregiver  
Physical health  
Men  
Coping  
Education

Diurnal CORTISOL

EPDS severity

Child  
Temperament  
Regulation

Preterm  
Birth complications  
NICU  
Temperament





# Infant cortisol

- Infants show an afternoon flattened pattern
  - i.e. did not decrease as much as expected.
- ↓ average maternal response to distress and ↑ cognitive growth fostering activities predict ↓ concentrations of infant cort over the day
- ↓ average social-emotional growth fostering activities predict ↓ of a decline in cort over the day
  - i.e. did not decrease as much as expected.





# IMPLICATIONS



# Review question for parent education domain

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***What are the population level parent education interventions that public health can realistically do to support early child social, emotional and cognitive development from the prenatal period to the end of the first year of life?***



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# Parent education

- Flexible options/menu of services
- Consistent info from well-trained socially engaging professionals
- Parent satisfaction with support group
  - Faciliator skill
  - Participants develop social connection
- Convenience of location affects attendance
  - Work-based
  - Primary care centre
- Parent knowledge: outcomes comparable
  - Group
  - Internet
  - DVD or video



# Review question for social connectivity domain



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***What are the population level social connectivity interventions that public health can realistically do to promote social, emotional and cognitive development from the prenatal period to the end of the first year of life?***



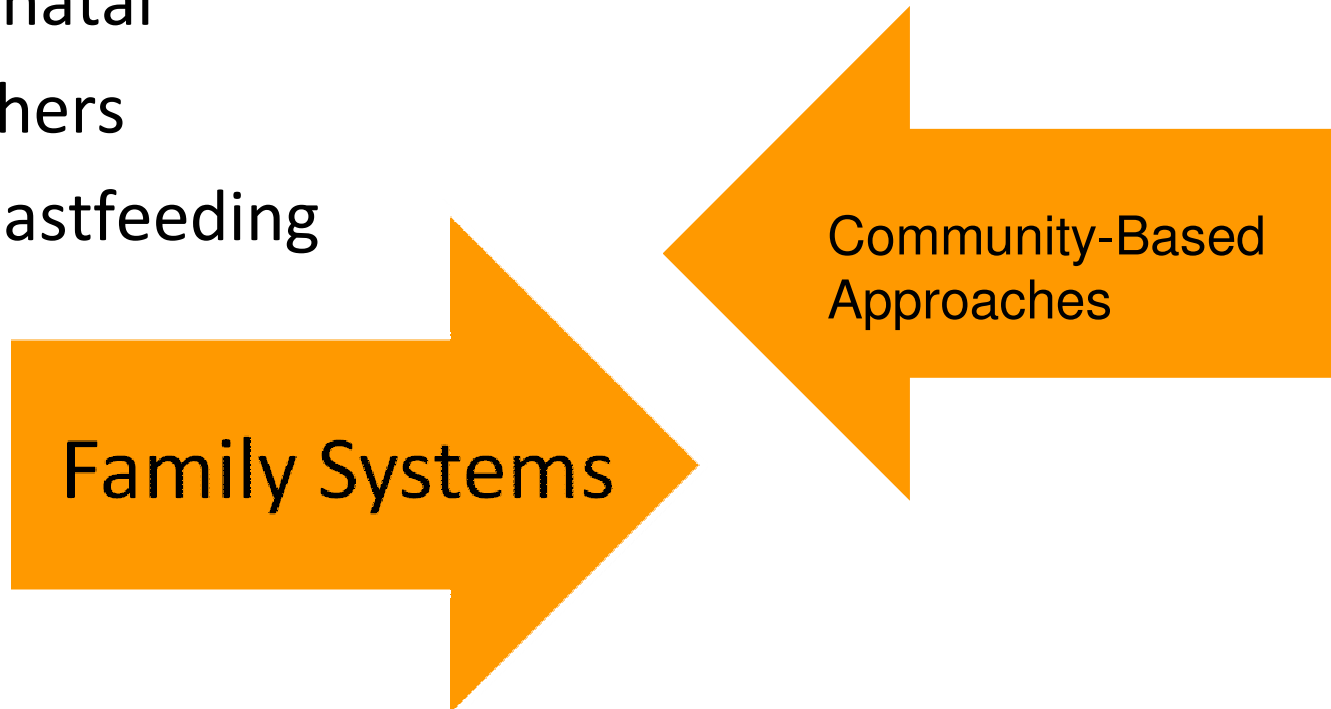
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# Social connectivity

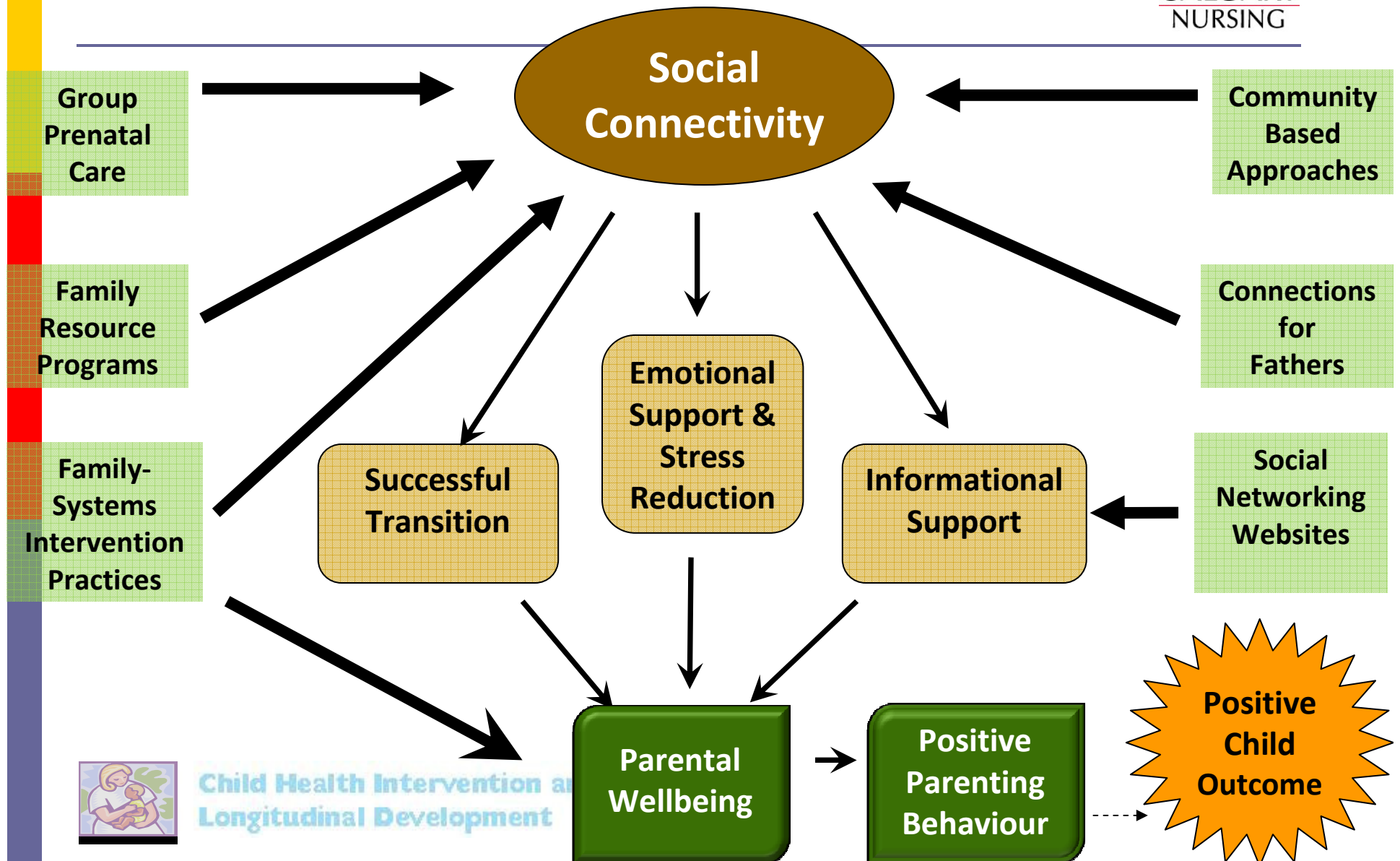
- Prenatal
- Fathers
- Breastfeeding



# It's all about relationships



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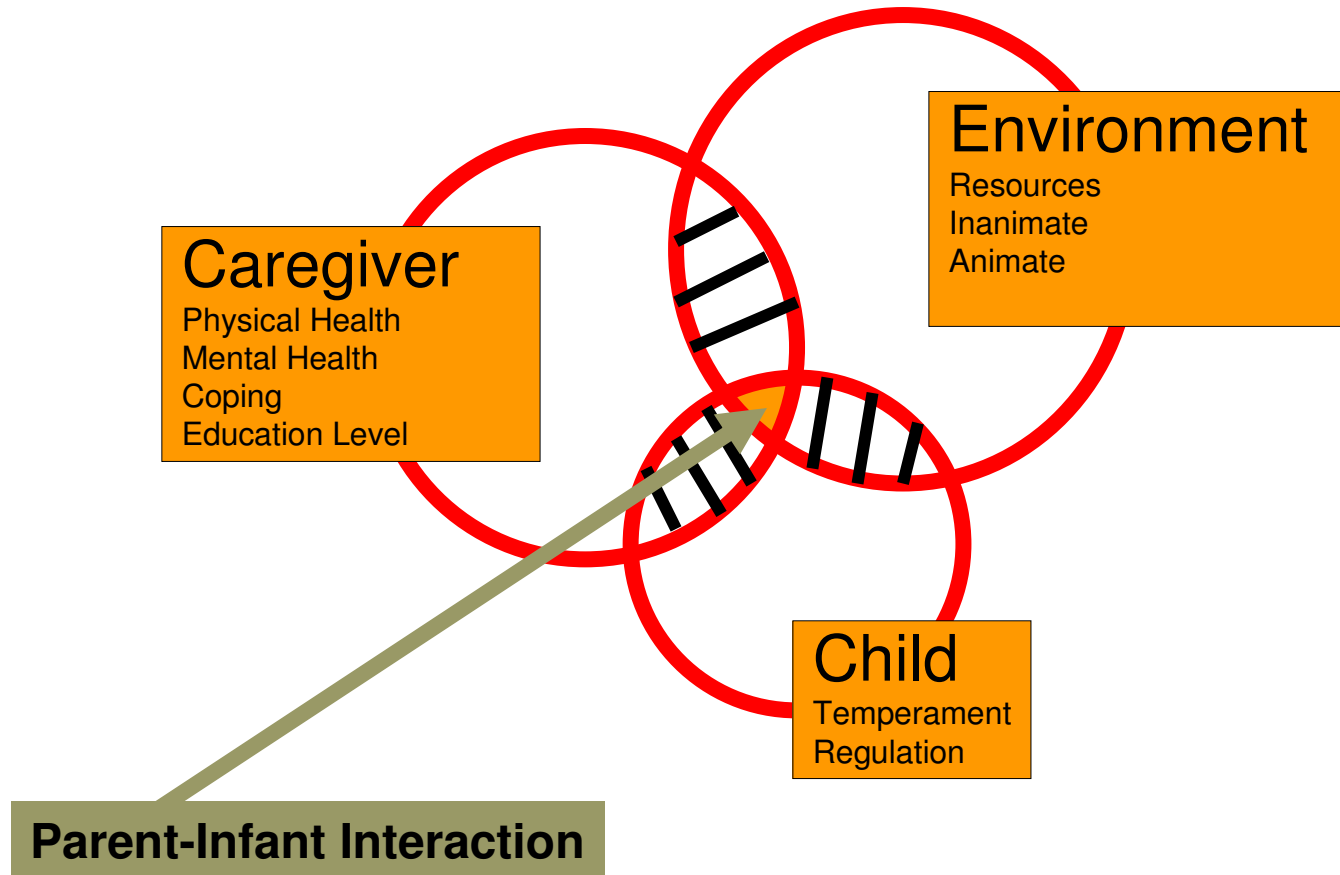


# General principles

- Relationships between interveners and parents; working in the realm of relationships;
- Social support systems;
- Tools & programs that provided genuine support (perhaps some of the support systems we have developed are too artificial);
- Friends, grandparents;
- Child Health Assessment Model and Attachment theory to guide relationship work.



# Child Health Assessment Model (Barnard, 1976)





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**THANK YOU!**



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