

The intergenerational transmission of child maltreatment:

An examination of underlying mechanisms using a multidisciplinary approach

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Outline

- Aim and design of the study
- Observations:
 - Handgrip paradigm
 - Parent-child interaction task
 - Family interaction task
- Questions for discussion

3-generation family study

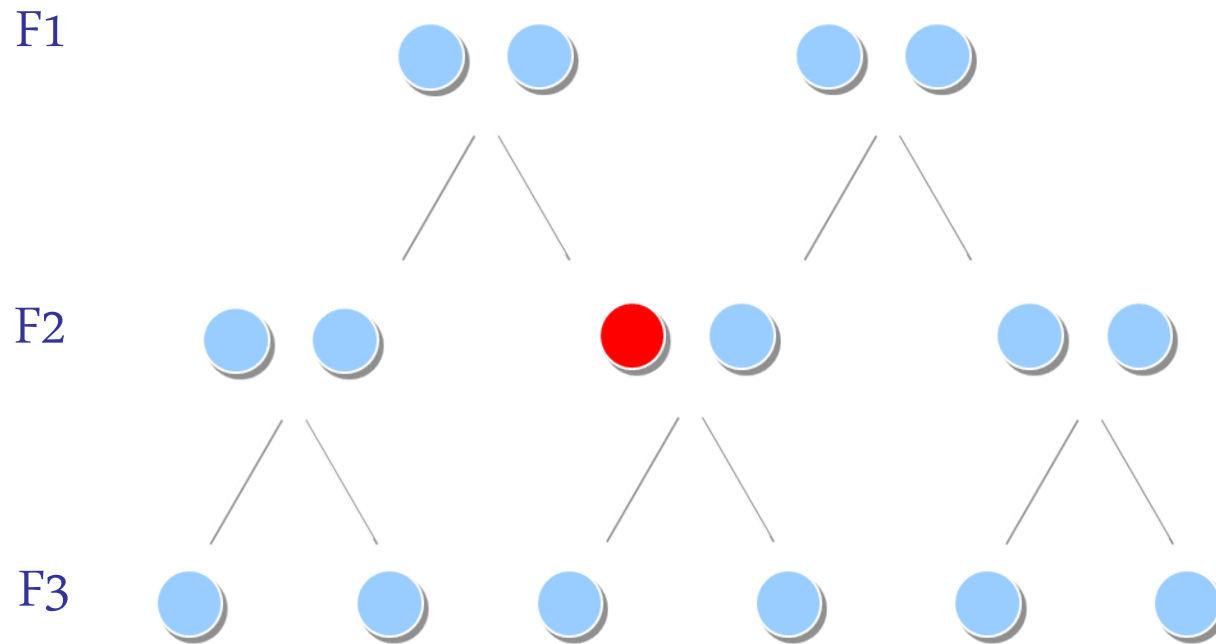
Aim

Unravel the process of intergenerational transmission of child maltreatment using a multidisciplinary approach

- Intergenerational transmission occurs in approximately 30% of the cases (but large range)
- Mechanisms are largely unknown



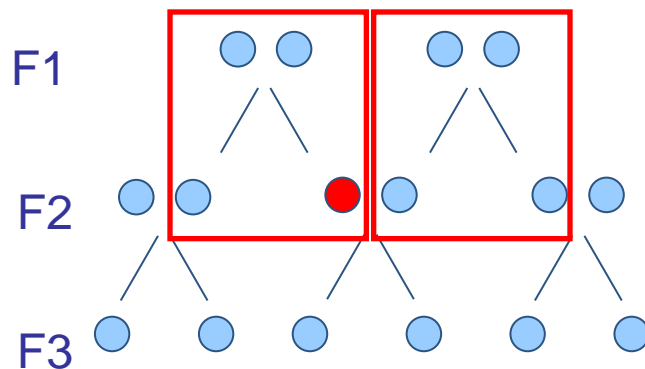
Design family study



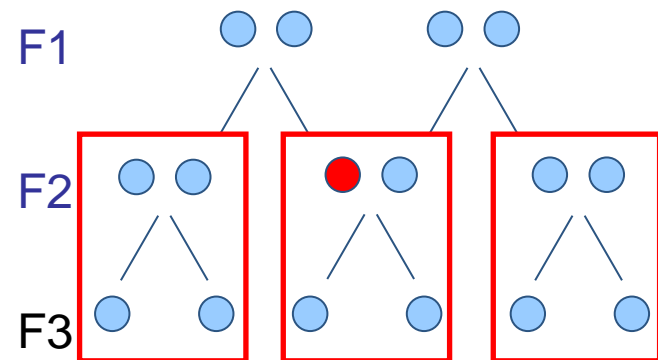
Design family study

Visits to the lab:

with the **parents**,
and siblings



with the **children**,
partner, and siblings



Measures

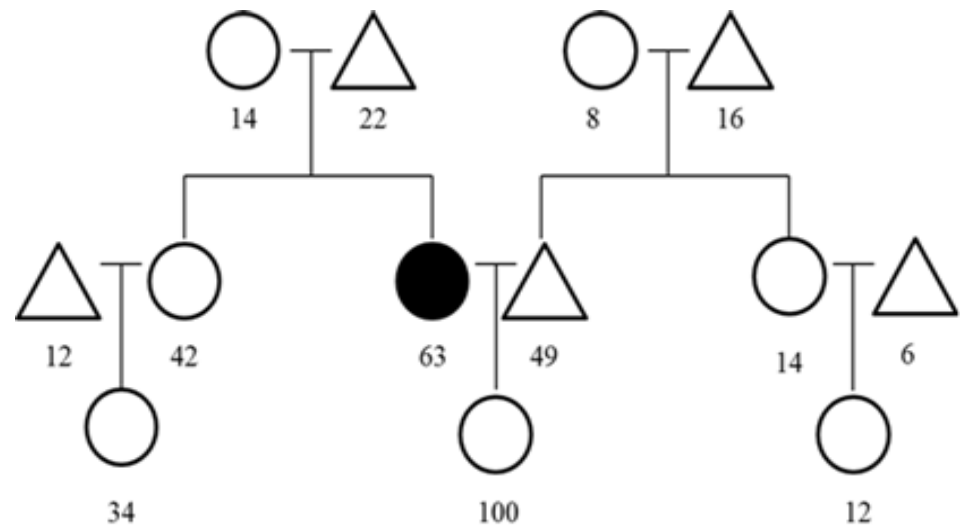
- Maltreatment experiences
- Behavioral reactivity
- Physiological reactivity
- Interactions between family members
- Psychopathology
- Personality
- DNA
- Brain morphology and activity

Maltreatment

- Conflict Tactics Scales & Childhood Trauma Questionnaire
 - Experienced and perpetrated maltreatment
 - Multiple informants
 - participants (experienced and perpetrated)
 - their parents (perpetrated)
 - their children (experienced)
 - Physical & Emotional Abuse
 - Physical & Emotional Neglect

Sample

- 396 participants from 63 families
- 227 women, 169 men
- M age = 39 years, range = 7 - 88 years
- 6.23 family members per family, range = up to 23
- 92% Caucasian

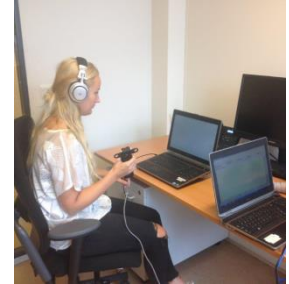


Research questions

1. Is experienced maltreatment a risk factor for perpetrated maltreatment?
2. What are the roles of:
 - a) physiological and behavioral reactivity to infant signals;
 - b) the quality of parent-child interactions;
 - c) family functioningin the intergenerational transmission of child maltreatment?

Three attachment-relevant tasks

- 1) **Handgrip paradigm:** handgrip force and physiological stress reactivity in reaction to infant signals



- 2) **Parent-child interaction task:** warmth, negativity, emotional support, physiological reactivity



- 3) **Family interaction task (Jenga):** whole family interactions



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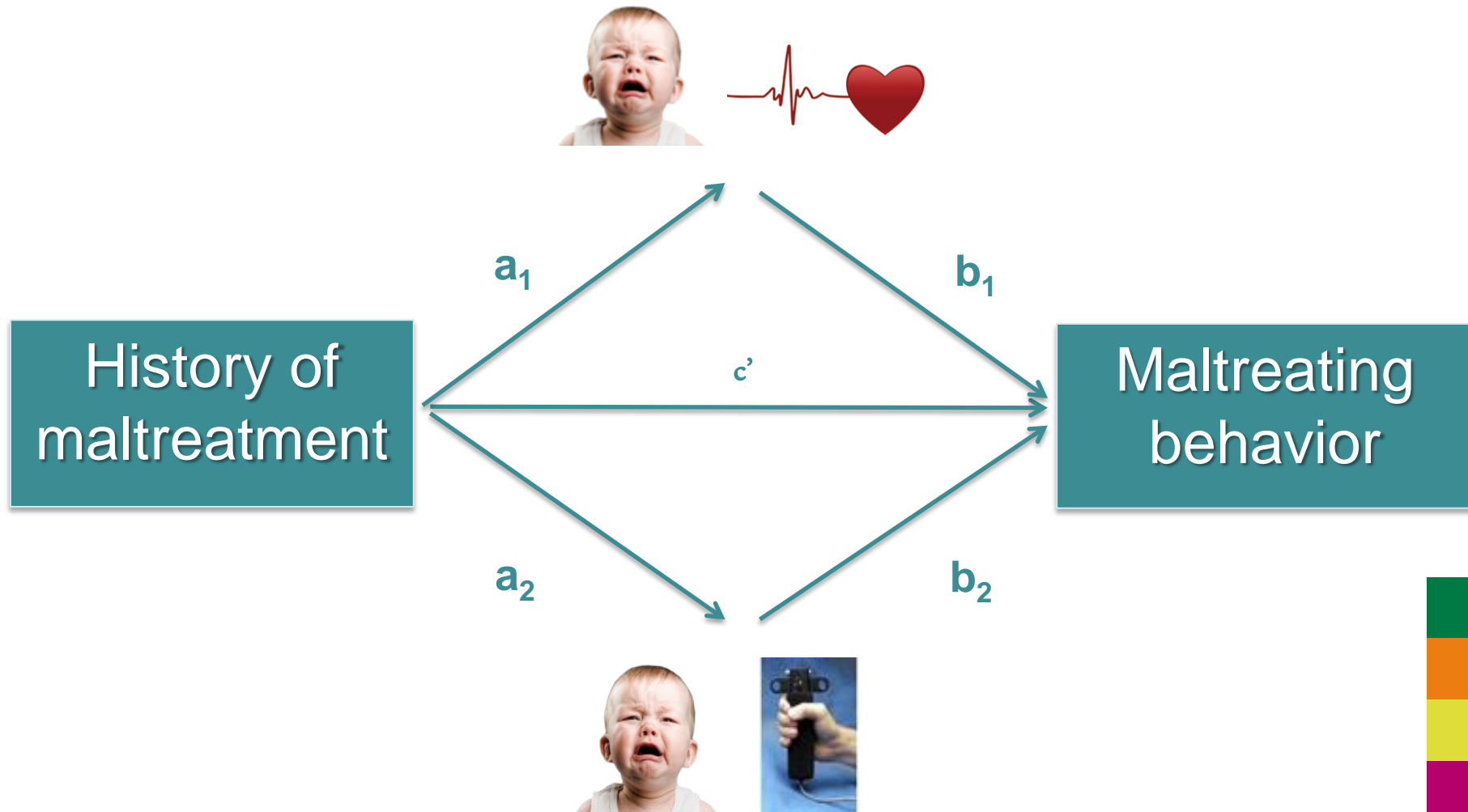
Handgrip paradigm: background



- Infant *laughter* and *crying* elicit parental proximity and care (Bowlby, 1969/1982)
 - *Laughter*: reinforces parental playful interactions
 - *Crying*: proximity, but also irritation & abusive responses
- Behavioral & physiological reactivity to infant signals associated with child abuse and harsh parenting (e.g., Bakermans-Kranenburg et al., 2011, Compier-Block et al., 2015; Crouch et al., 2008; Reijman et al., 2014)
 - excessive force as indicator of behavioral reactivity (e.g., Bakermans-Kranenburg et al., 2011, Compier-Block et al., 2015; Crouch et al., 2008)



Handgrip paradigm: Model



Handgrip paradigm: behavioral reactivity



- Handgrip dynamometer
(model TSD121C, Biopac Systems, 2004)
- Squeezing at maximum and half strength
- Test retest reliability (Reddon, Stefanyk, Gill, & Renney, 1985)
- Practice until correct force modulation



Handgrip paradigm: behavioral reactivity



■ Handgrip force during:

- Baseline (no sound)
- 2-min infant laughter
- 2-min infant crying



Infant laugh.wav



Infant cry.wav

$$\text{Handgrip force} = \frac{\text{Half strength squeeze}}{\text{Full strenght squeeze}}$$

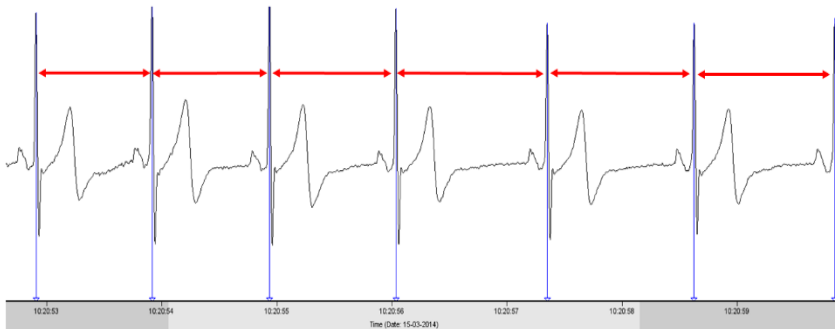
Handgrip paradigm: physiological reactivity

"Rest & Digest"

Respiratory Sinus Arrhythmia (RSA):

Naturally occurring variation in heart rate during respiration

Assessed with Electro Cardiography (ECG):

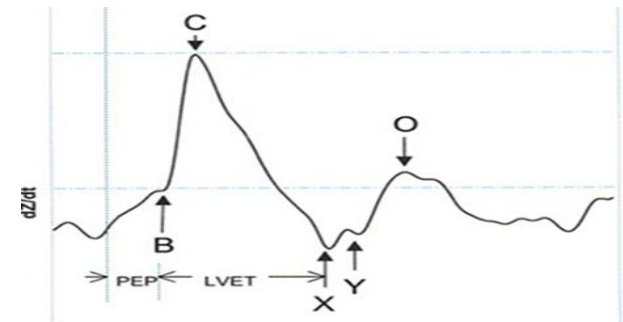


"Fight or Flight"

Cardiac Pre-Ejection Period (PEP):

Shortened PEP is reflective of greater sympathetic nervous system (SNS) influence.

Assessed with Impedance Cardiography (ICG)



Handgrip paradigm: Data-analysis

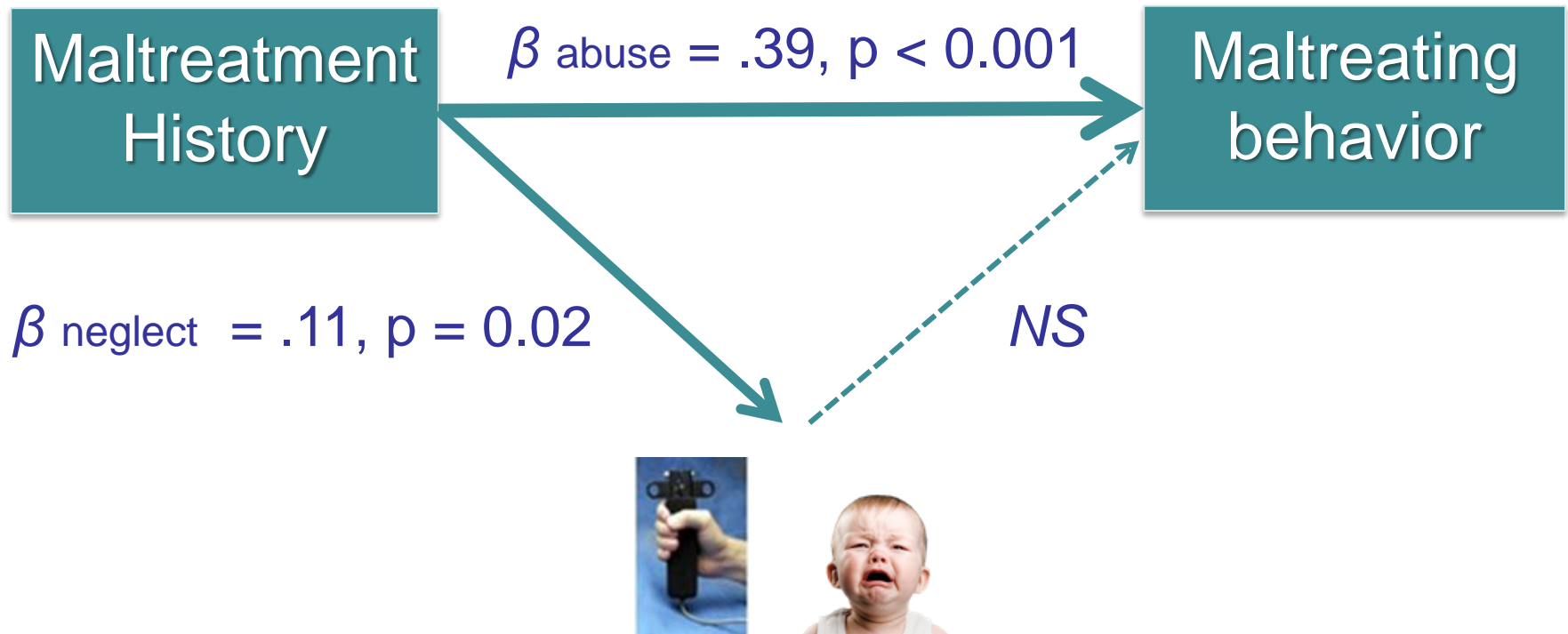
1. Association with maltreatment (experienced, perpetrated)
 - RM ANCOVA on handgrip force during condition (baseline, laughter, crying)
 - Experienced and perpetrated maltreatment as covariate
 - Order of presentation as between-subjects factor
2. Behavioral reactivity as mediator in maltreatment history ➡ maltreating behavior
 - Mediation analysis (Preacher & Hayes, SPSS macro)
 - IV = Experienced maltreatment
 - DV = Perpetrated maltreatment
 - M = Handgrip force during crying



Handgrip paradigm: preliminary results

- Significant condition effect ($F(2,155) = 6.14, p < .01$, partial $\eta^2 = .04$)
 - more force during laughter than during crying ($p < .01$)
- Significant interaction condition x experienced neglect ($F(2,155) = 3.51$, $p < .05$, partial $\eta^2 = .02$)
 - More experienced neglect \rightarrow more force during crying vs. laughter ($p < .05$)

Handgrip paradigm: Preliminary results



¹Controlling for SES, age and gender

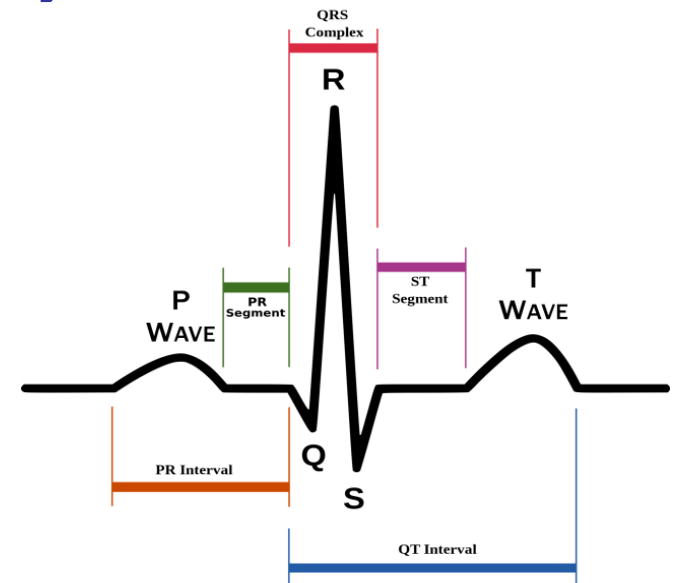
² $N = 145$

Handgrip paradigm: Conclusions

- History of maltreatment ➡ maltreating behavior
- History of neglect (but not abuse) ➡ behavioral reactivity to infant crying
 - Neglect more profound impact than abuse (Cicchetti & Toth, 1995, Crouch & Milner, 1993; Gaudin, 1999)?
 - Antecedents and consequences might differ depending on type of maltreatment
- Handgrip force not related to maltreating behavior
 - Physiological reactivity to detect differences in distress elicited by infant signals?

Handgrip paradigm: Next steps

- Take the nested structure of the data into account → multilevel modeling
- Examine physiological reactivity to infant sounds (ECG)
- Examine participants' perceptions of infants sounds



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Parent-child interaction task: Background

Attachment theory (Ainsworth et al. 1978; Bowlby 1988)

Early relationships with attachment figures leads to formation of internal working model (IWM)

- IWM guides behavior in future relationships
- IWM related to warmth & emotional support parents show toward their children (Bowlby, 1988; Main, Kaplan, & Cassidy, 1985)

Parent-child interaction task:

Method

- Revealed difference task (Strodbeck, 1951)
 - 10 minute video-taped parent-child interactions
 - Reach consensus
- Supportive Behavior Task Coding manual (Allen et al., 2003)
 - Warmth
 - Negativity
 - Emotional Support
- Four independent coders (ICC range: .65 - .84)
- Physiological reactivity (ECG)



Parent-child interaction task: Examples

2 video examples (very high versus very low on warmth, negativity and emotional support) to be inserted here

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Family interaction task: Background

- Family Systems Theory (Bowen, 2000):
 - Family as emotional unit
 - Actions of family member cannot be understood in isolation, but must be examined within the context of the family
- Family conflict and lack of family cohesion ➡ coercive interactions that increase likelihood of child maltreatment

Family interaction task: Method



- Playful task: Jenga
 - Nuclear family
 - *“work together to build a tower as high as possible”*
 - 10 minute video-taped interaction

- System for coding interactions and family functioning (SCIFF) (Lindahl & Malik, 2000)
 - Cohesiveness (family rating)
 - Positive affect (individual rating)
 - Negative affect (individual rating)

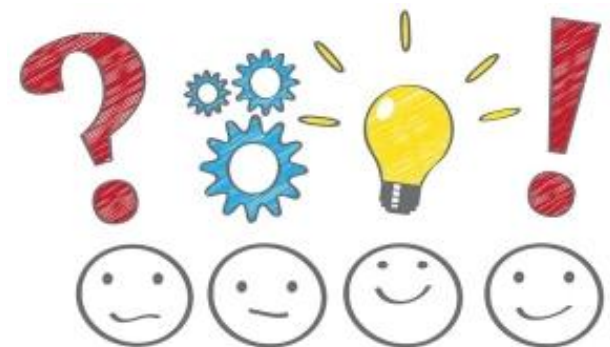
Family interaction task: Examples

2 video examples (high versus low on family cohesion) to be inserted here

Questions for discussion:

Data Analysis

1. How to best take the nested structure of the data into account?
2. How to deal with missing data?
 - Analyze complete cases?
 - Impute (outcome) variables?



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