The Development of Aggression: Why Do Girls and Boys Become So Different?

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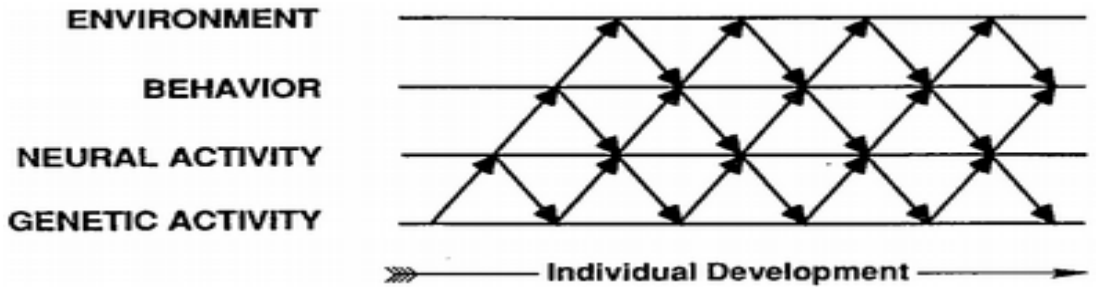
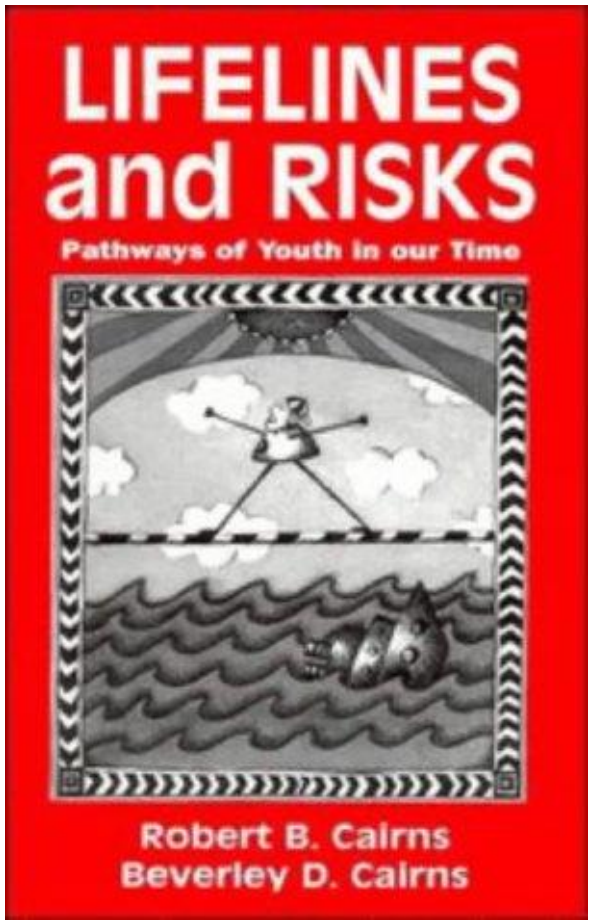
CUCHDS

Addressing Complex Longitudinal Questions: Gilbert Gottlieb's Concept of Probabilistic Epigenesis

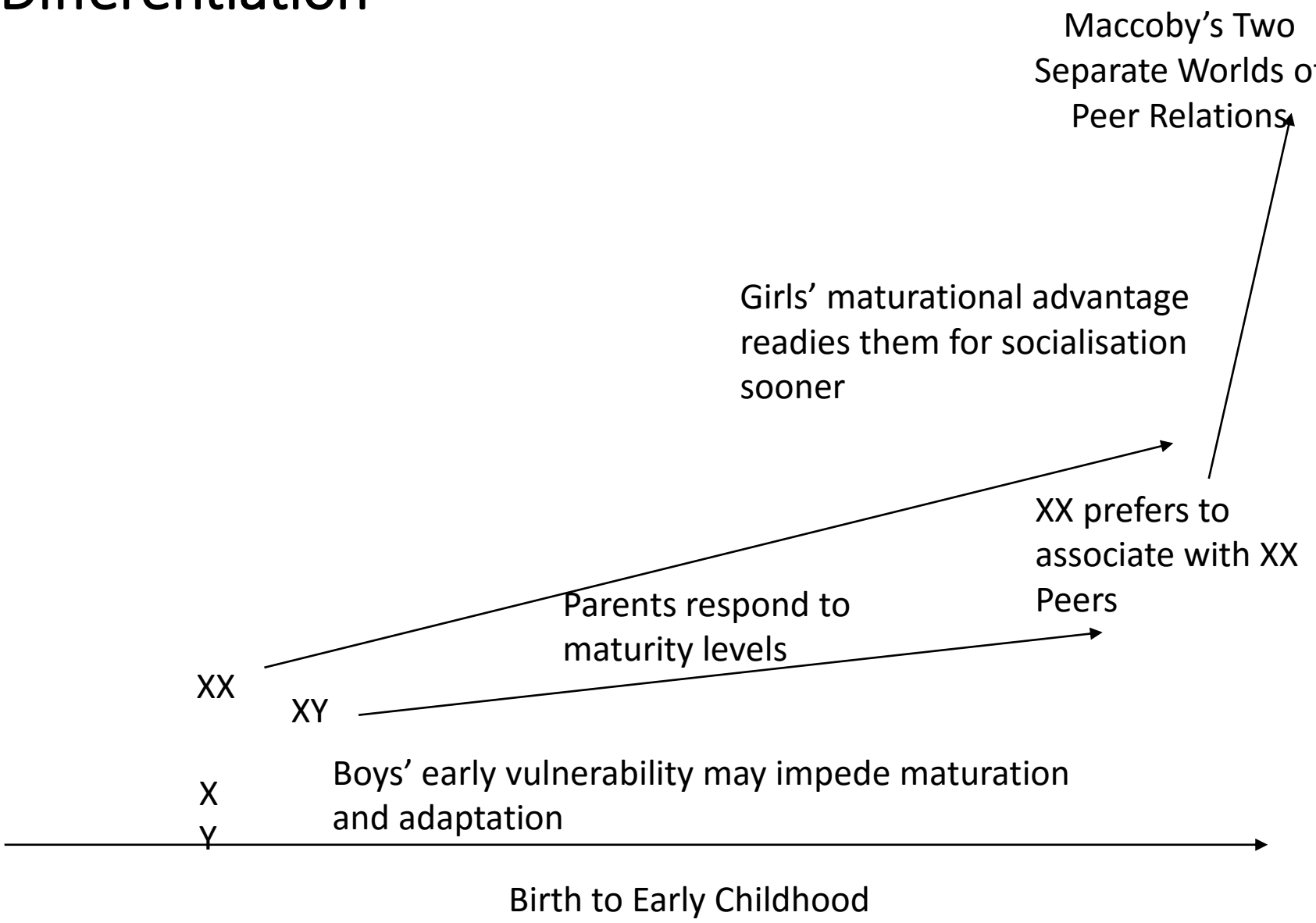


Gender Differences in Social Interaction: A Focus on Aggression



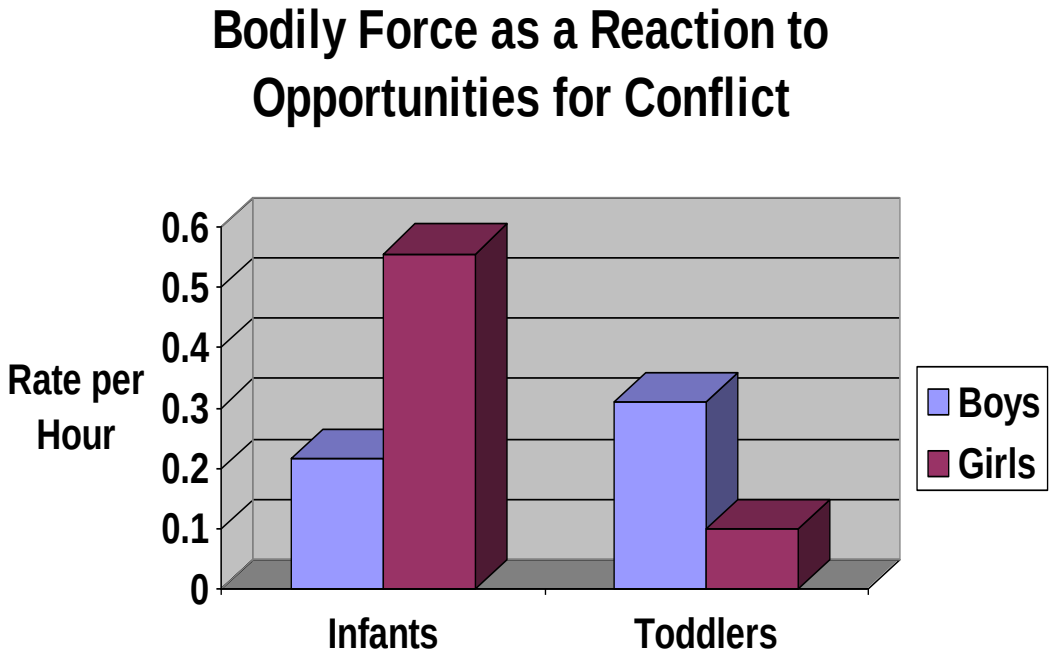
'It may be that sex differences in behaviour may require domain-specific models of development' (Cairns & Kroll, 1994)

The Development of Aggression: A Domain-Specific Model of Gender Differentiation



Observational Studies of Infants' and Toddlers' Conflicts with Peers

- Studies Using the Peer Interaction Coding System (PICSSUM data base N = 323; Hay, Nash, et al., 2011)
- Compared infants (< 24 months) and toddlers (> 36 months)
- Opportunities for conflicts identified; conflicts recorded and examined for use of two types of physical force
  - Tugging on peers' toys (71% at least once)
  - Bodily Force (striking out at peers' bodies) (43% at least once)



Many children under the age of three are capable of using force against peers; they do so rarely

A Longitudinal Study of Aggression and Conduct Problems: The South London Child Development Study

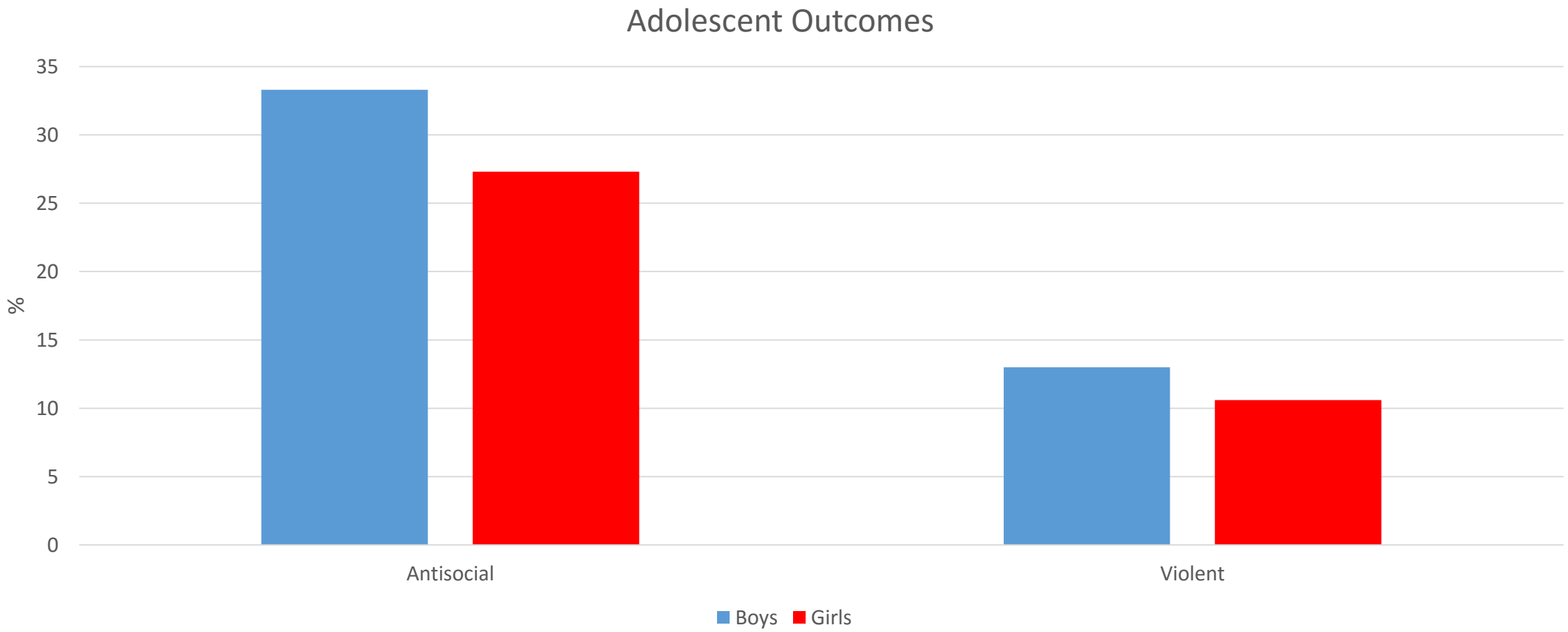
Principal Investigators: Debbie Sharp, Channi Kumar, Susan Pawlby

- A random sample from consecutive antenatal patients registered at two areas in South London during one year (N = 171)
- 96% of UK population registered with NHS; only 0.5% of children born in private hospitals
- > 90% in sample at age 16
- Informants' Reports of conduct problems
  - Mother, Father CBCL age 4
  - Mother, Teacher, Child SDQ age 11
  - Mother, Adolescent SDQ age 16
  - CAPA diagnoses at ages 11 and 16

Informants' Reports of Conduct Symptoms for Girls and Boys at 4, 11 and 16 years

NB. Gender differences most marked in middle childhood; No significant gender differences in conduct problems, after controlling for prosocial behaviour:

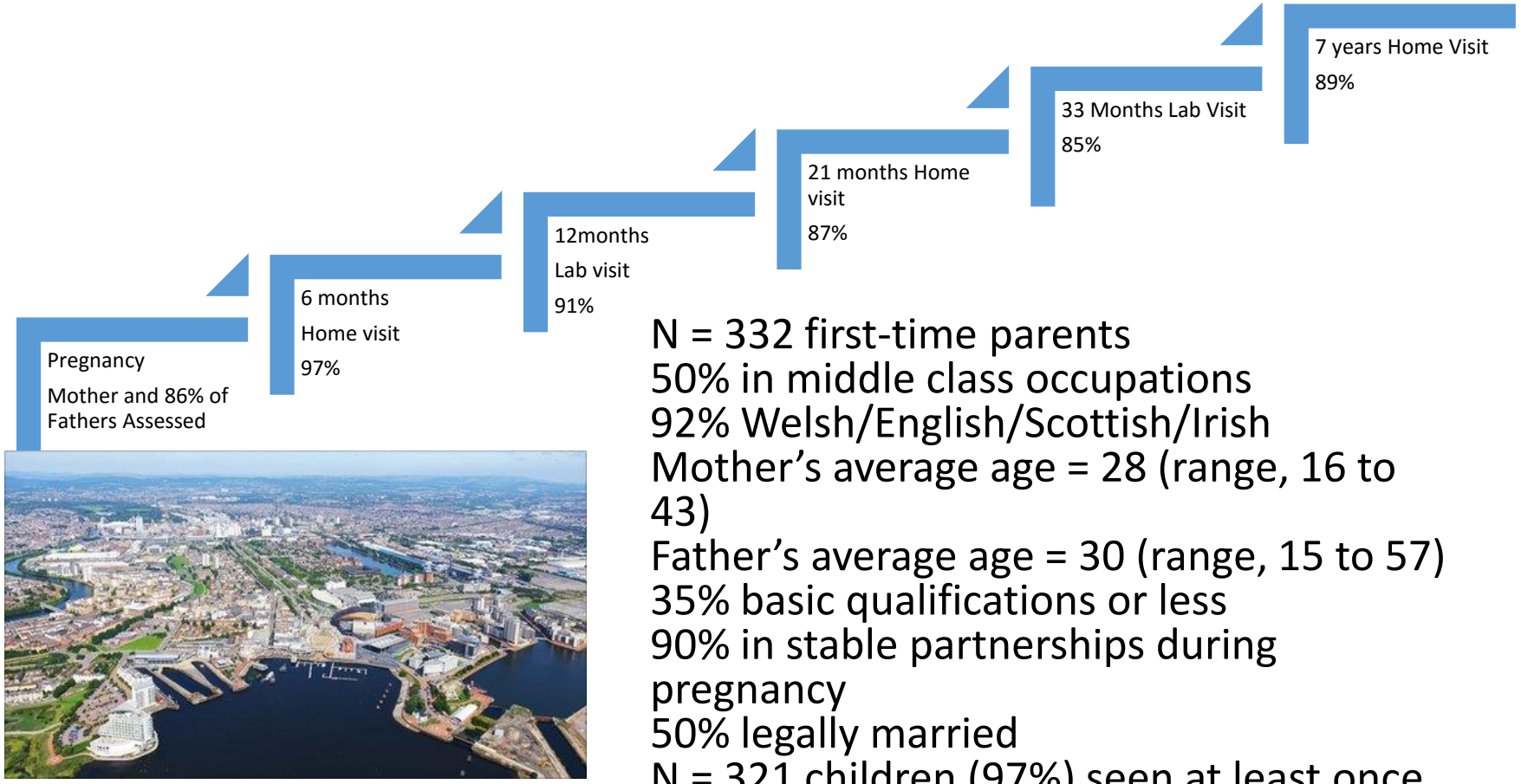
South London Child Development Study: Conduct Problems and Violence at Age 16



Antisocial: CD Diagnosis and/or Arrest

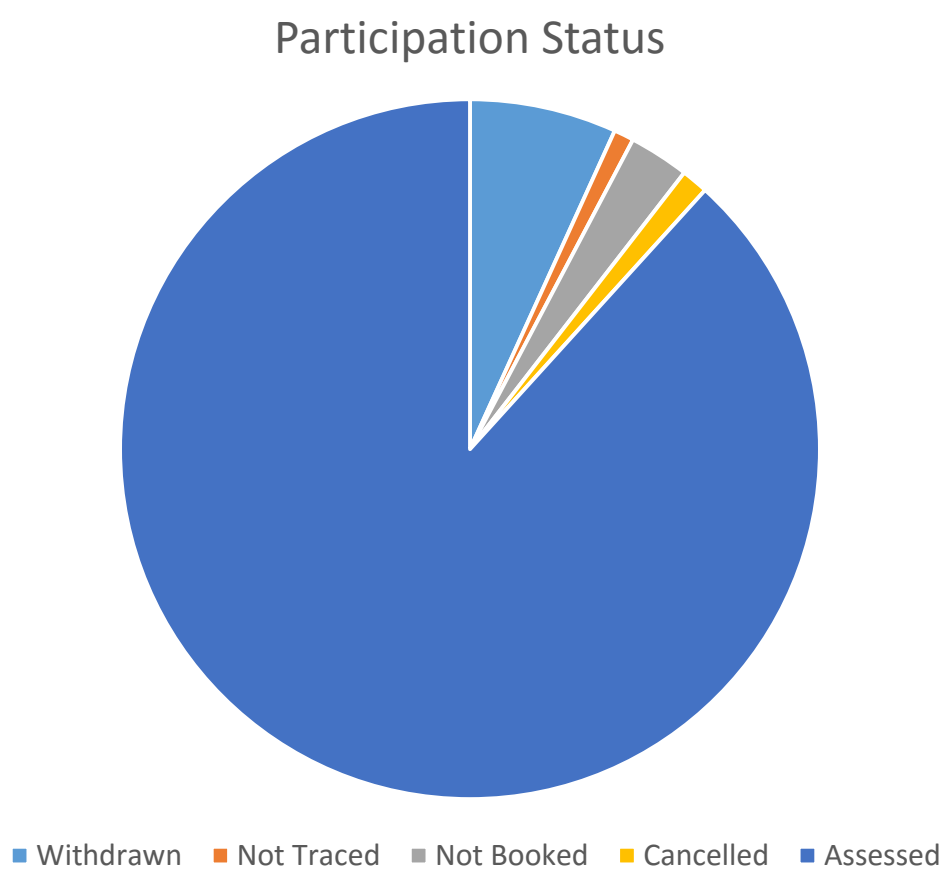
Violent: CD Diagnosis with Aggressive Symptoms and/or Arrest for Violent Crime

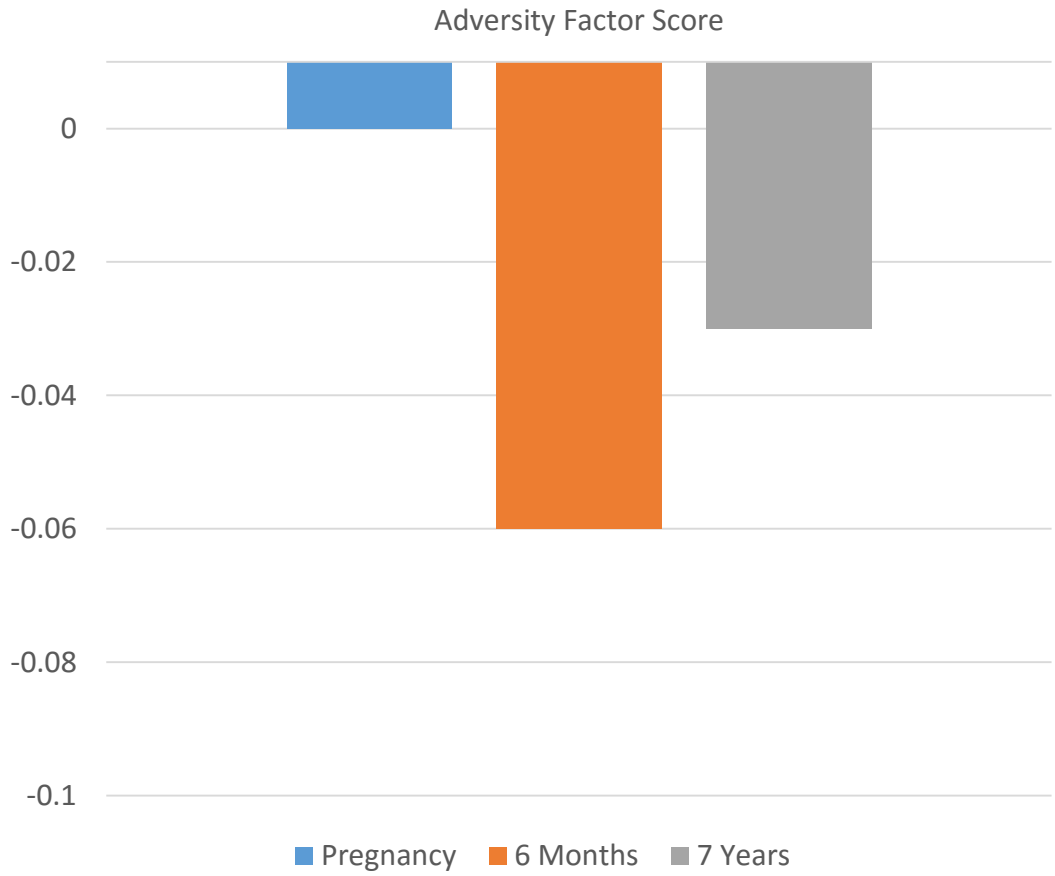
Aim of the Study: To Describe the Normative Development of Aggression in a Representative Sample: The Cardiff Child Development Study (CCDS)



N = 332 first-time parents
50% in middle class occupations
92% Welsh/English/Scottish/Irish
Mother's average age = 28 (range, 16 to 43)
Father's average age = 30 (range, 15 to 57)
35% basic qualifications or less
90% in stable partnerships during pregnancy
50% legally married
N = 321 children (97%) seen at least once after birth

CCDS Sample at the Final Assessment at 7 Years (N = 310 remaining in the sample, 93% assessed)



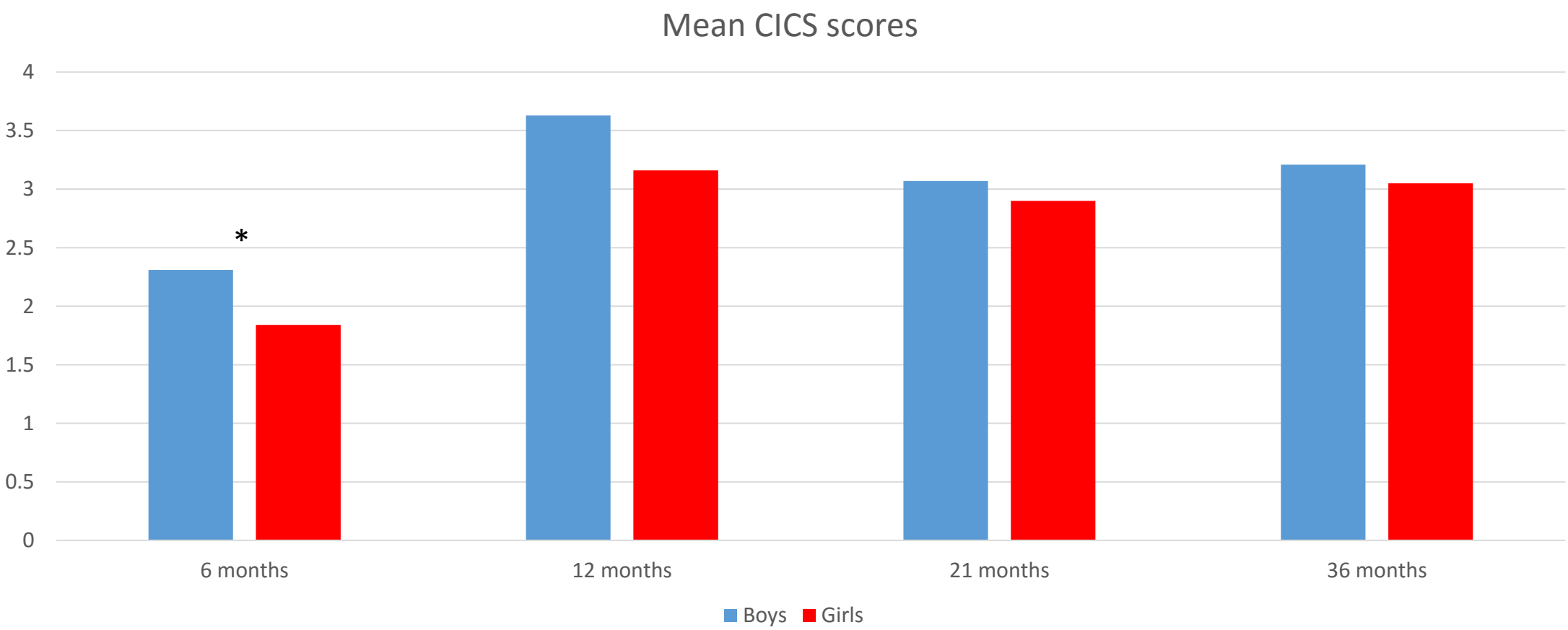


No significant differences in adversity factor score from original sample recruited in pregnancy

Sources of Information about Aggression in the CCDS

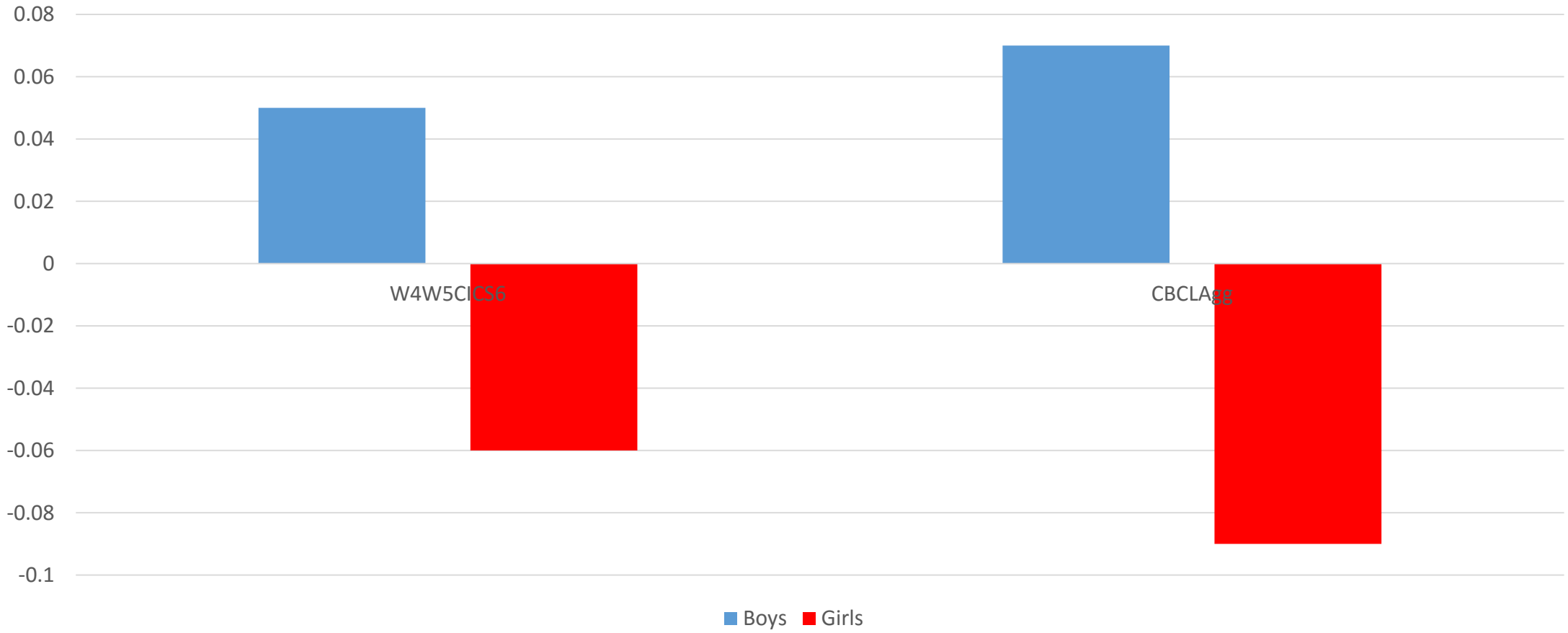
- Multiple Informants' reports of anger, physical aggression and related conduct problems at 6, 12, 21, 36 months and 7 years
- Observed use of force against unfamiliar peers during simulated birthday parties at 12 and 33 months
- Observed use of force against familiar peers during home visits at 21 months and against siblings and parents at 7 years
- Aggressive responses to social dilemmas at 7 years
- Diagnoses of CD and ODD at 7 years

Average of Up to Three Informants' Reports of Anger and Physical Force (CICS Score)



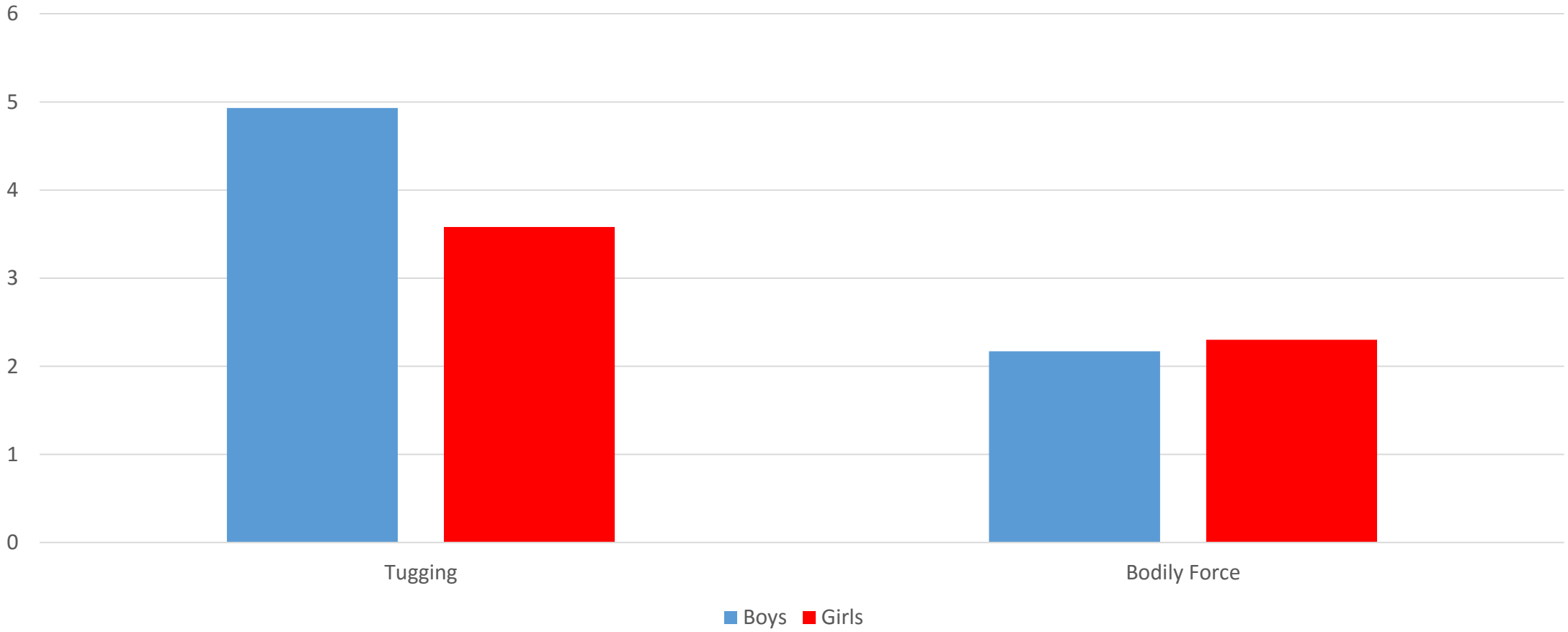
Hay, Perra, et al., *Aggressive Behaviour* 2010; Hay, Waters et al, *Developmental Science* 2014

Toddler CICS and CBCL Aggression Scale Scores



No significant associations with gender

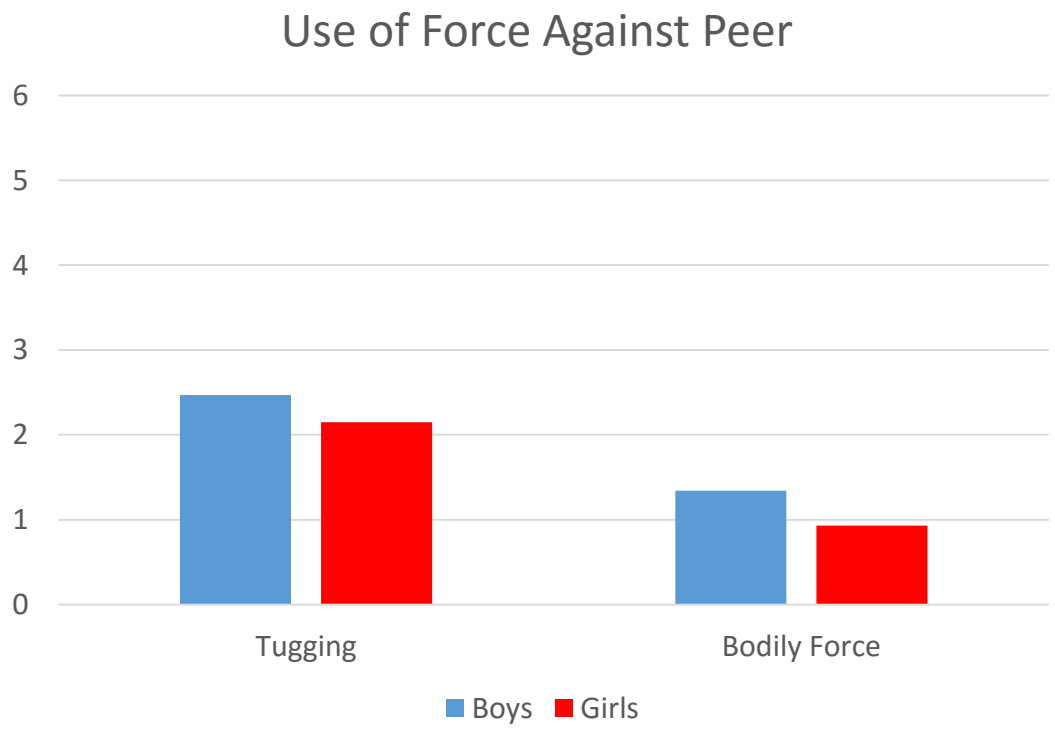
Use of Force against a Familiar Peer: Home Visit at 21 Months



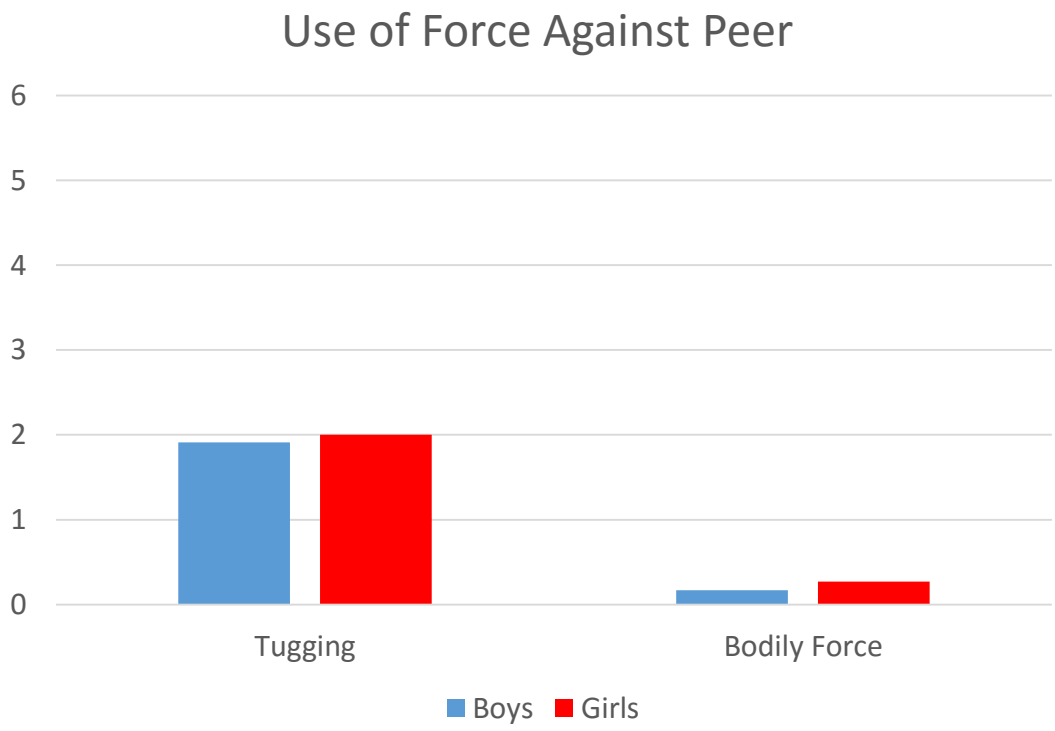
No Significant Associations with Gender

Observed Use of Force Against Unfamiliar Peers During Experimental Birthday Parties

12 months

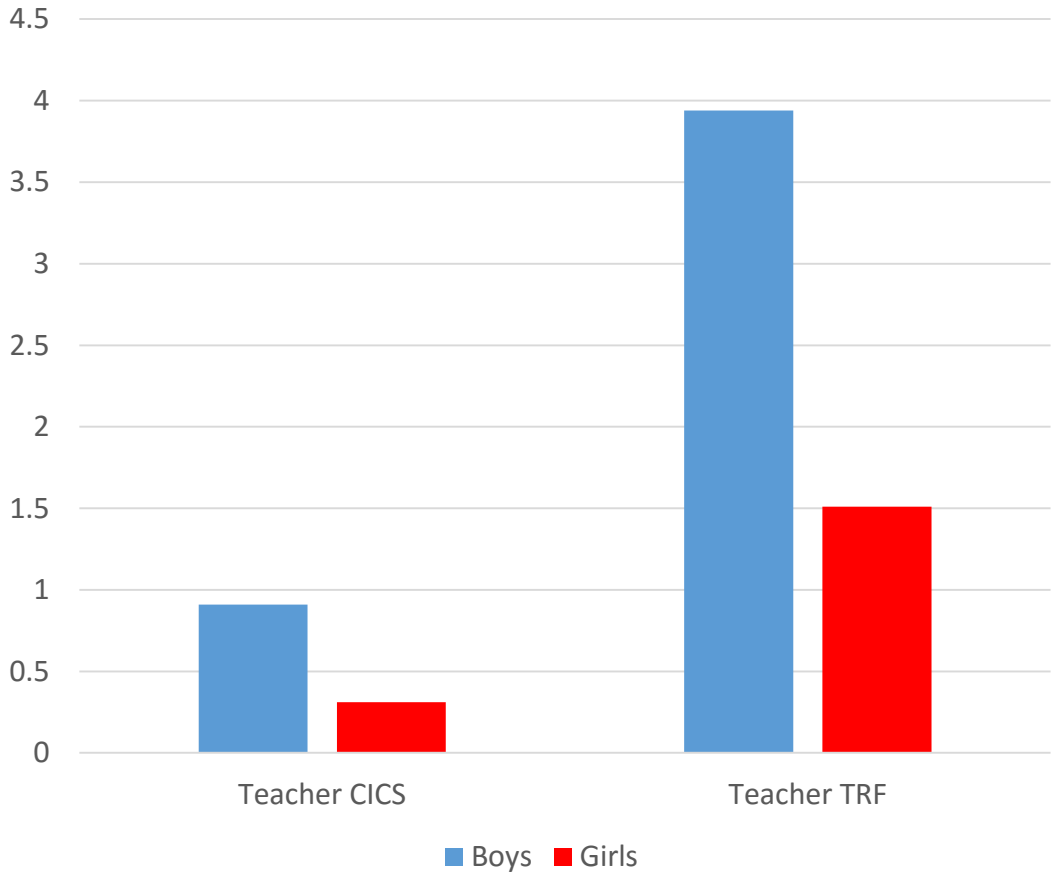


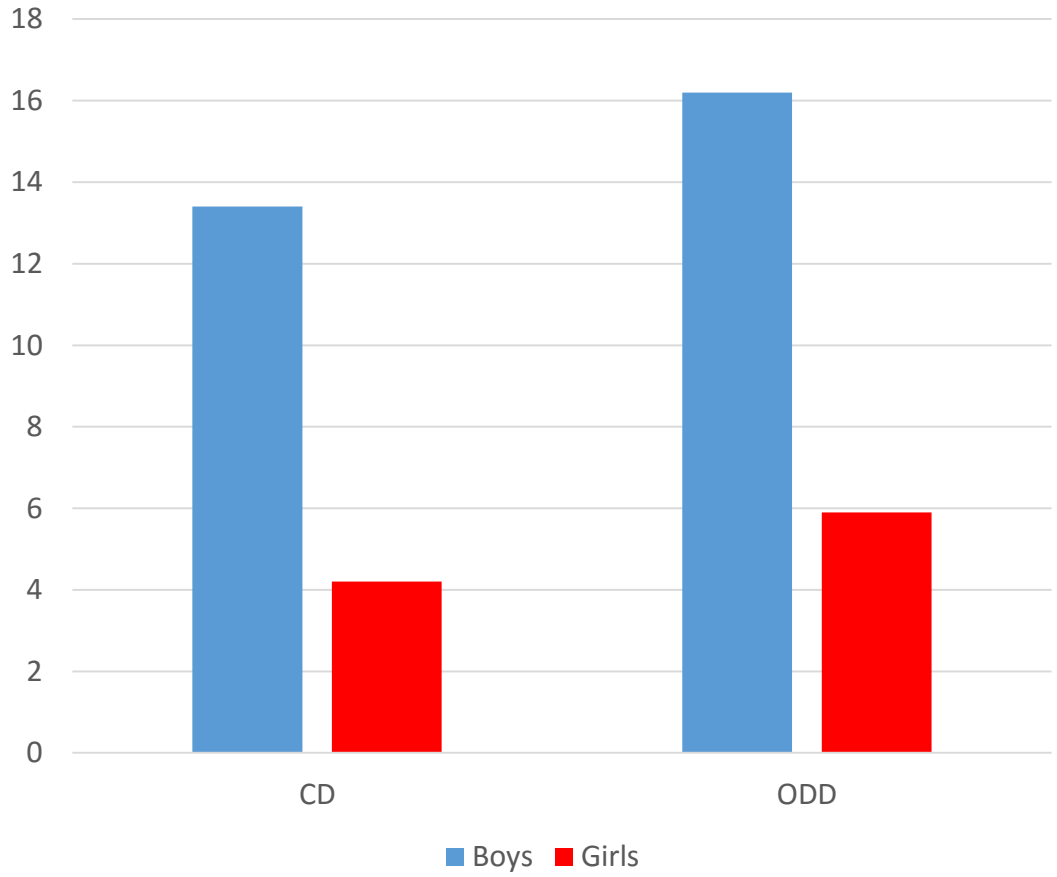
33 months



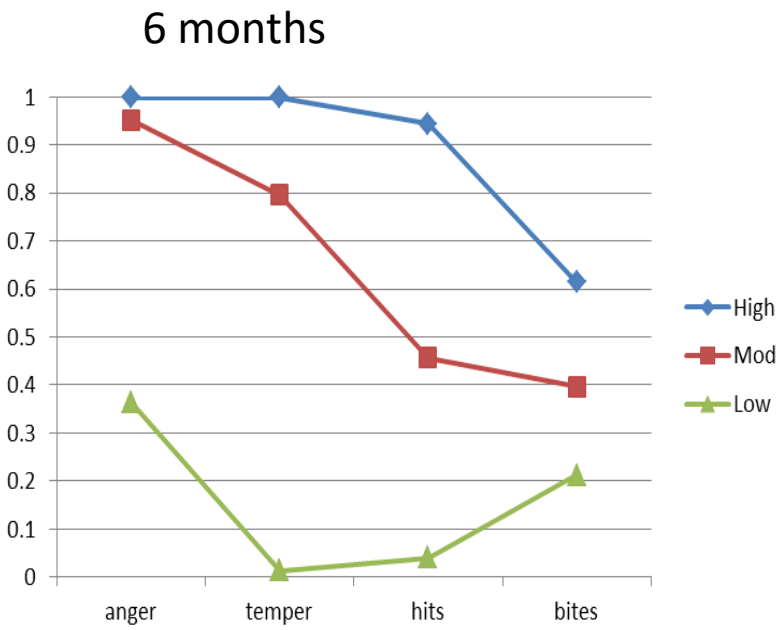
No significant associations with gender

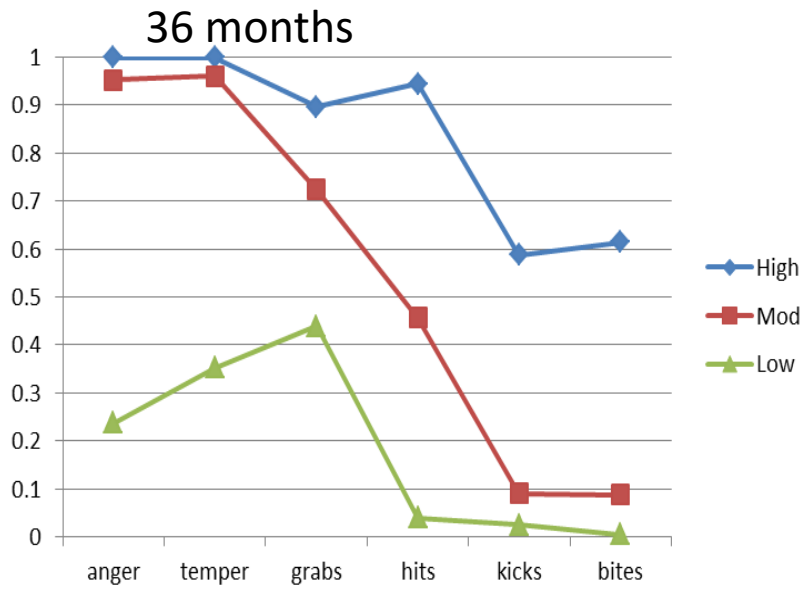
Gender Differences Are Apparent by Seven Years of Age





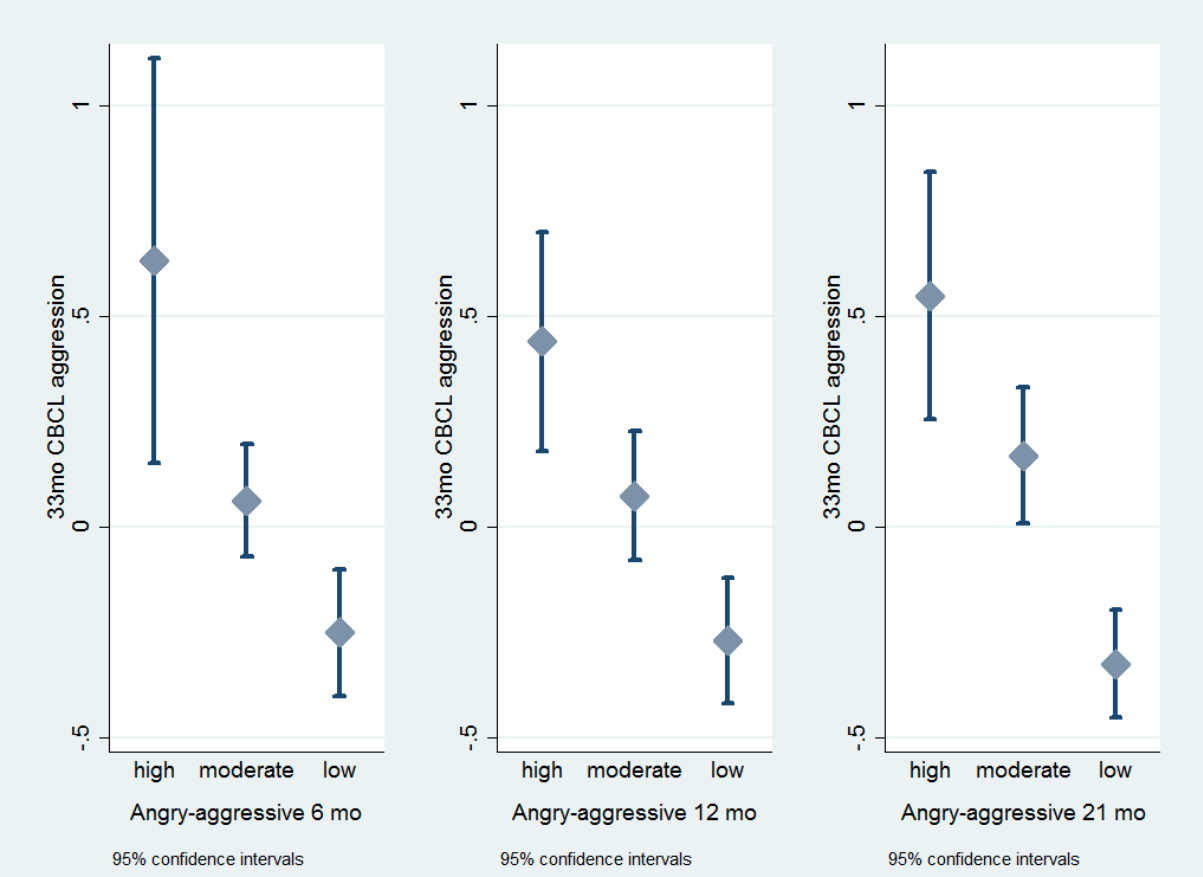
Anger and the Use of Force in the First Three Years: Individual Differences Predate Gender Differences





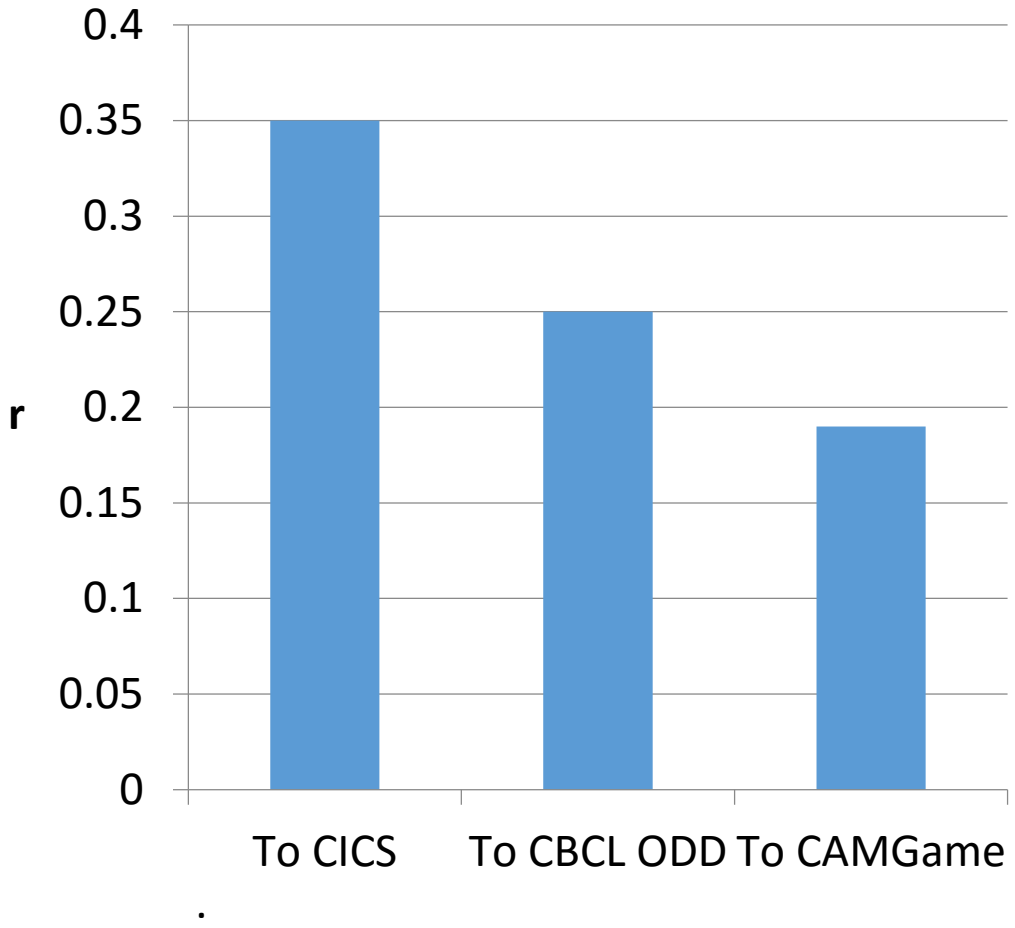
Latent class analysis of CICS items at 6 and 36 months; from Perra, et al., under review

Infants' and Toddlers' Behaviour Predict CBCL Aggression Factor Scores at 3 Years



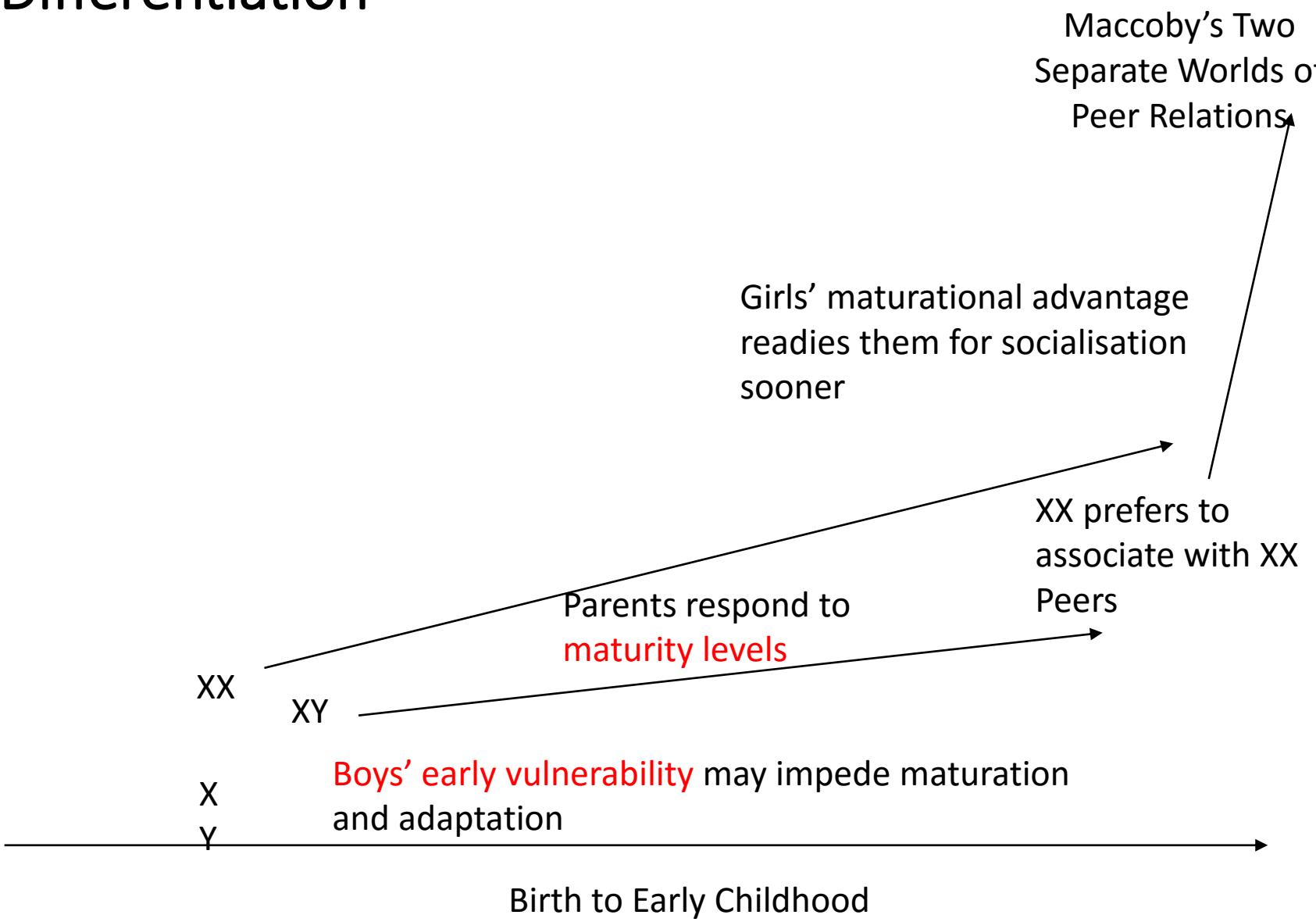
From Perra et al., under review

Early Anger and Use of Force Predicts Later Angry Aggressive Outcomes at 3 and 7 Years



From Hay, Waters, et al., 2014; Hay, Johansen, et al., 2017; gender differences in

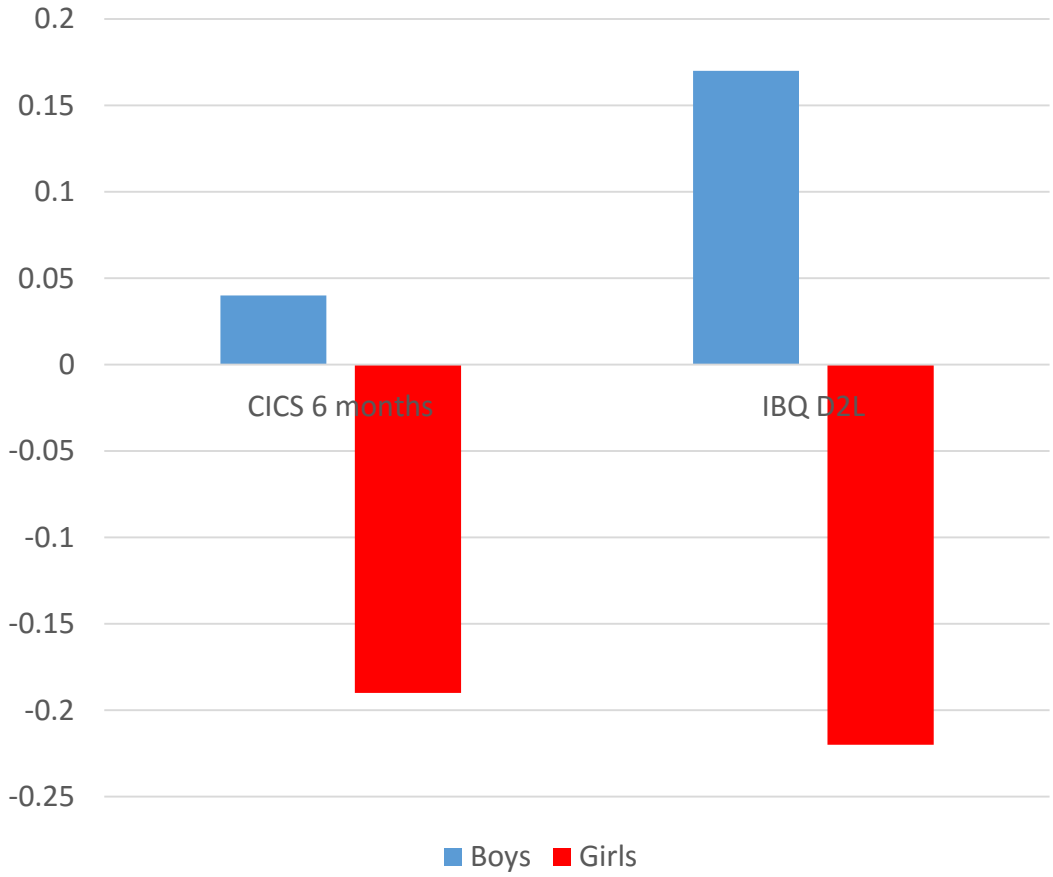
The Development of Aggression: A Domain-Specific Model of Gender Differentiation



Is the Eventual Gender Difference in Aggression Produced by Individuals Who Are Outliers?

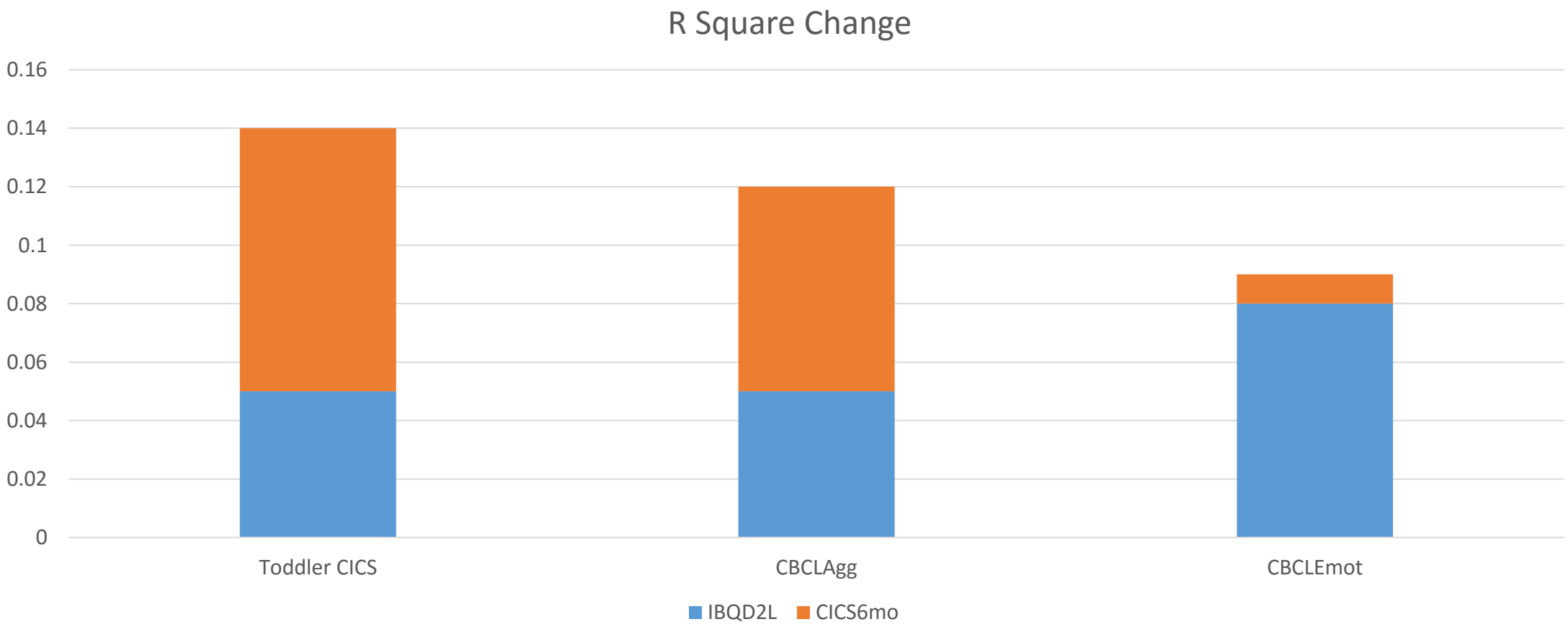
- Dimensions on which Girls and Boys May Differ in Infancy
  - Emotional Volatility?
  - Self-Regulation and Neurocognitive Problems?
  - Communication and Language?
  - Empathy?

Emotional Volatility: Emotional Challenges in Early Infancy



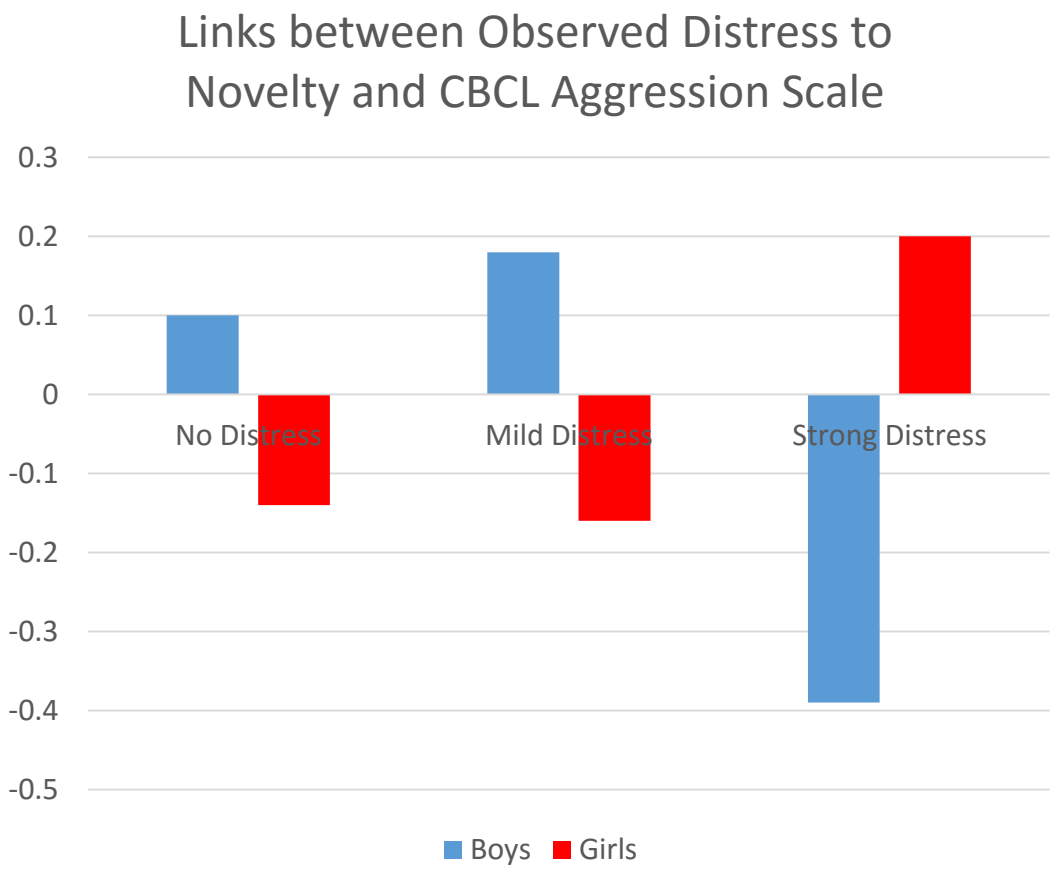
Gender Difference on 6 Months CICS no longer significant when control for temperamental irritability (IBQ distress to limitations scale); the reverse is not true

Irritability in Infancy and Aggressive Outcomes: Explained by Early Anger and Use of Force



IBQ Distress to Limitations Score No Longer Predicts Aggressive Outcomes When Infant CICS Score Is Included in the Model; CICS does not predict CBCL Emotional Problems

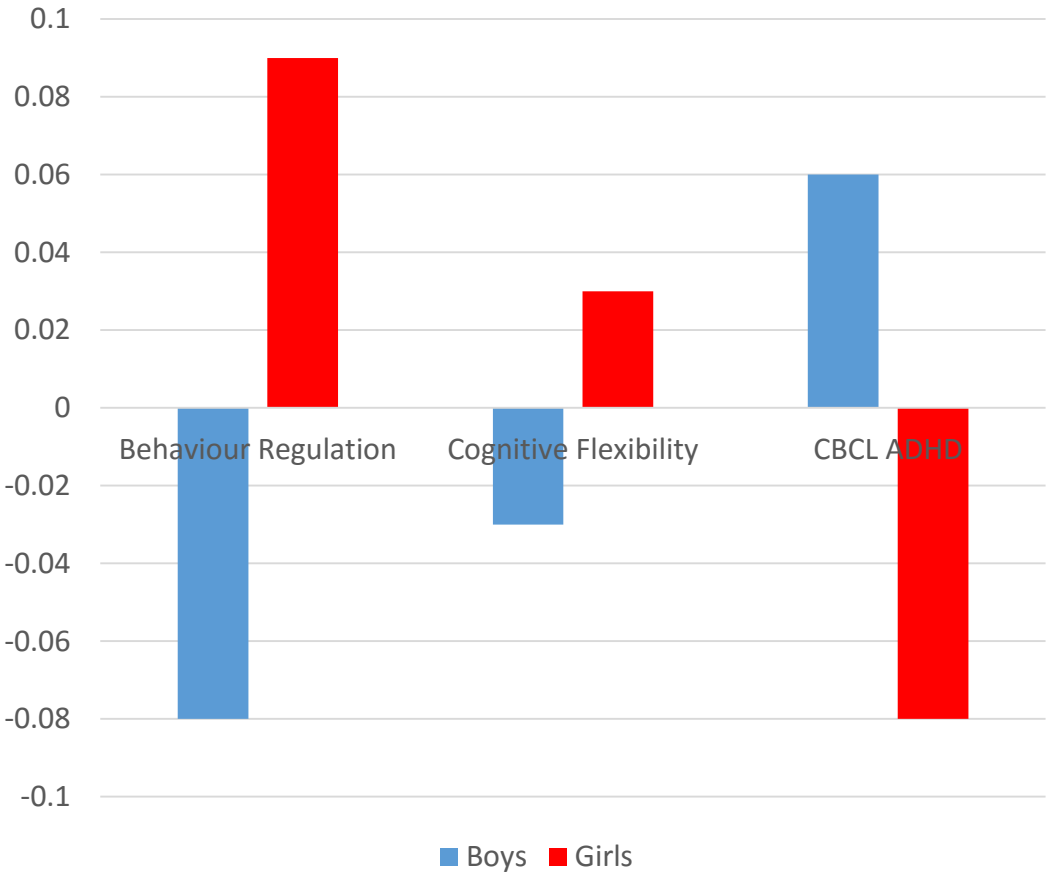
Emotional Volatility in Later Infancy

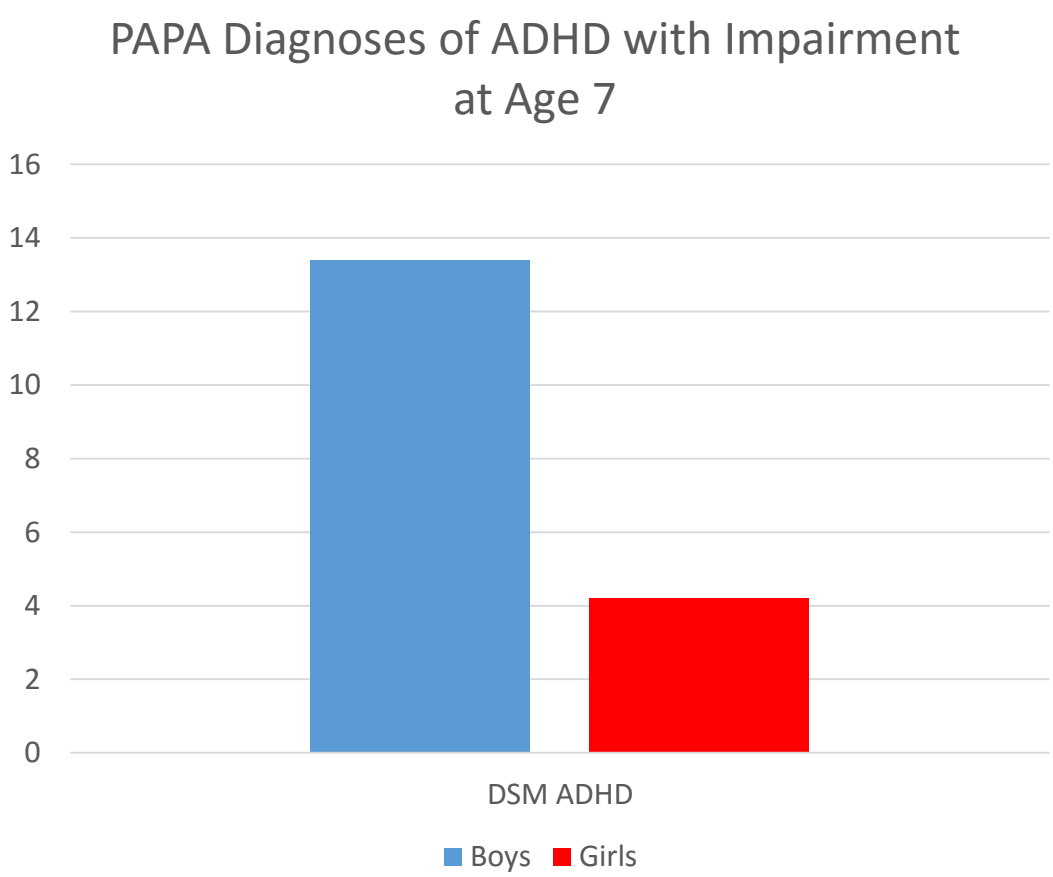


19% of infants showed strong distress; no gender differences

Self-Regulation and Neurocognitive Problems?
Self-Regulation Tasks at 33 Months

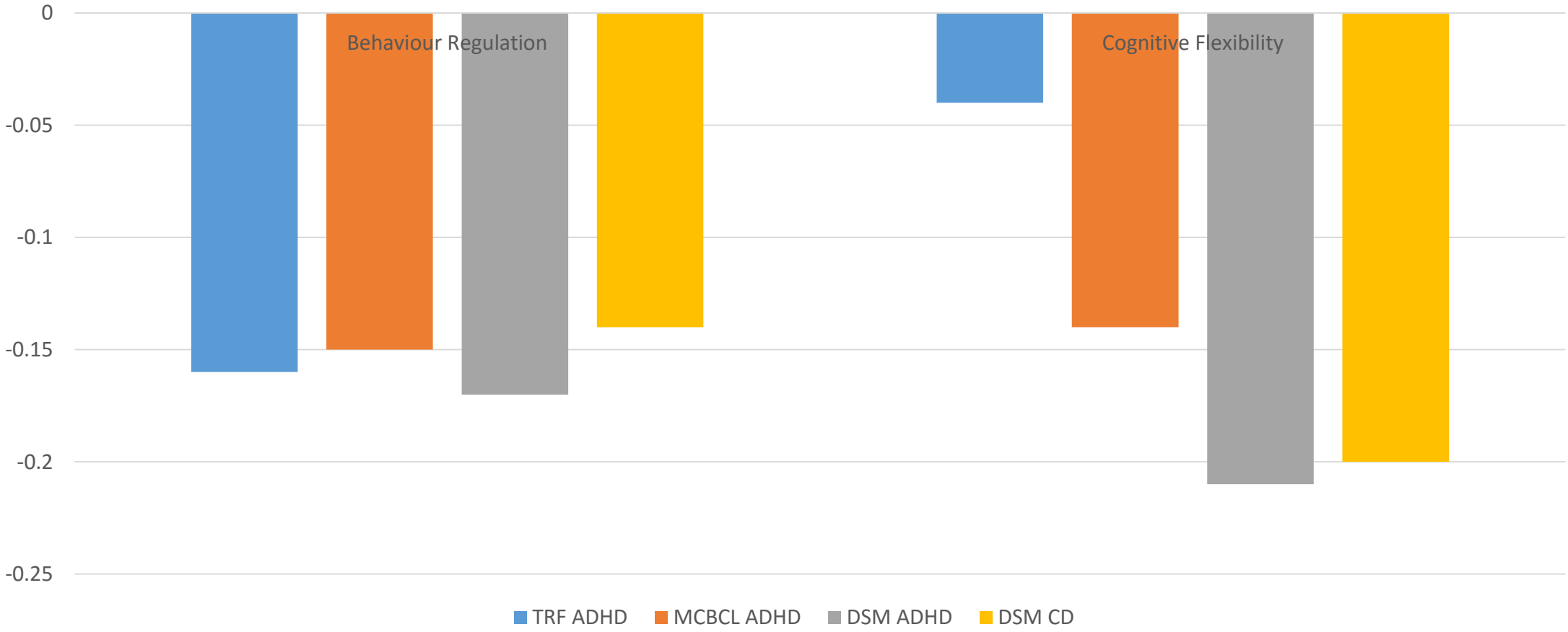
Self-Regulation and Neurodevelopmental Problems





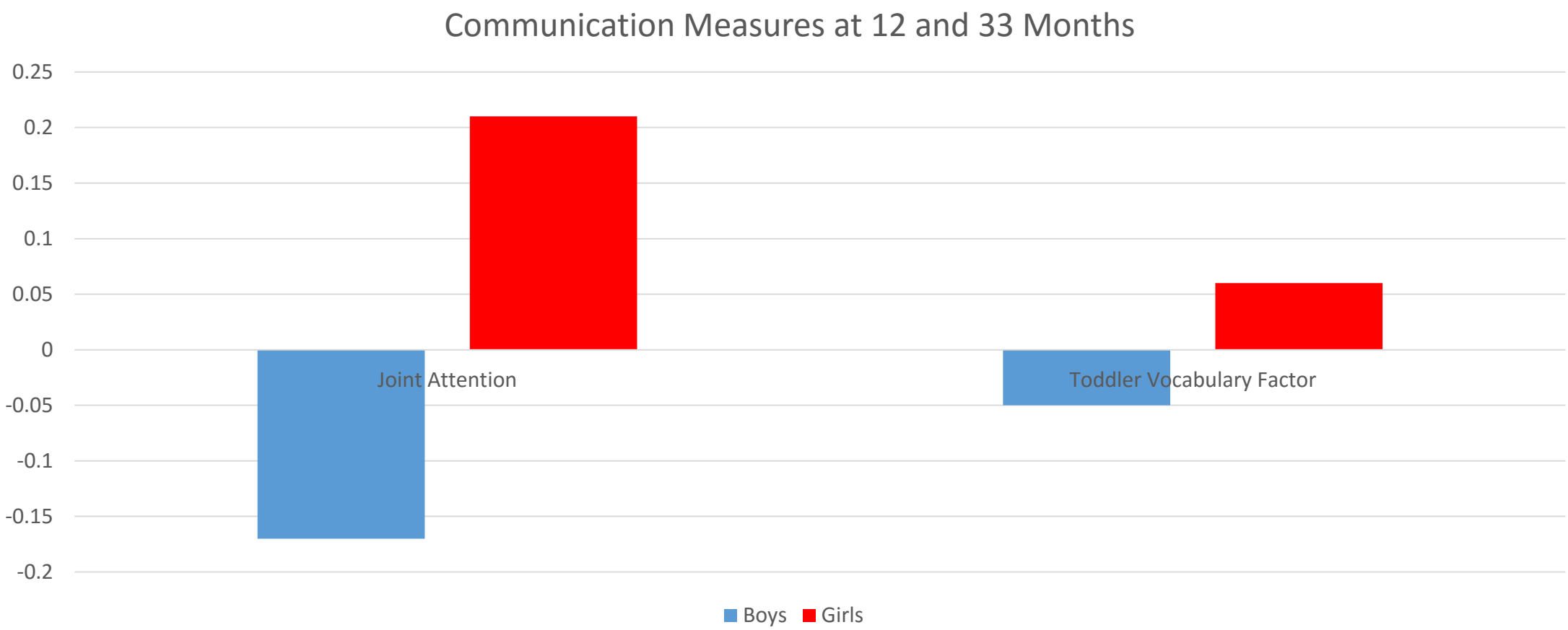
Girls and boys differ significantly at 33 months on behaviour regulation factor but not cognitive flexibility or CBCL ADHD symptoms

Protective Function of Self-Regulation: Associations between Tasks at 33 Months and Neurodevelopmental Outcomes at 7 Years



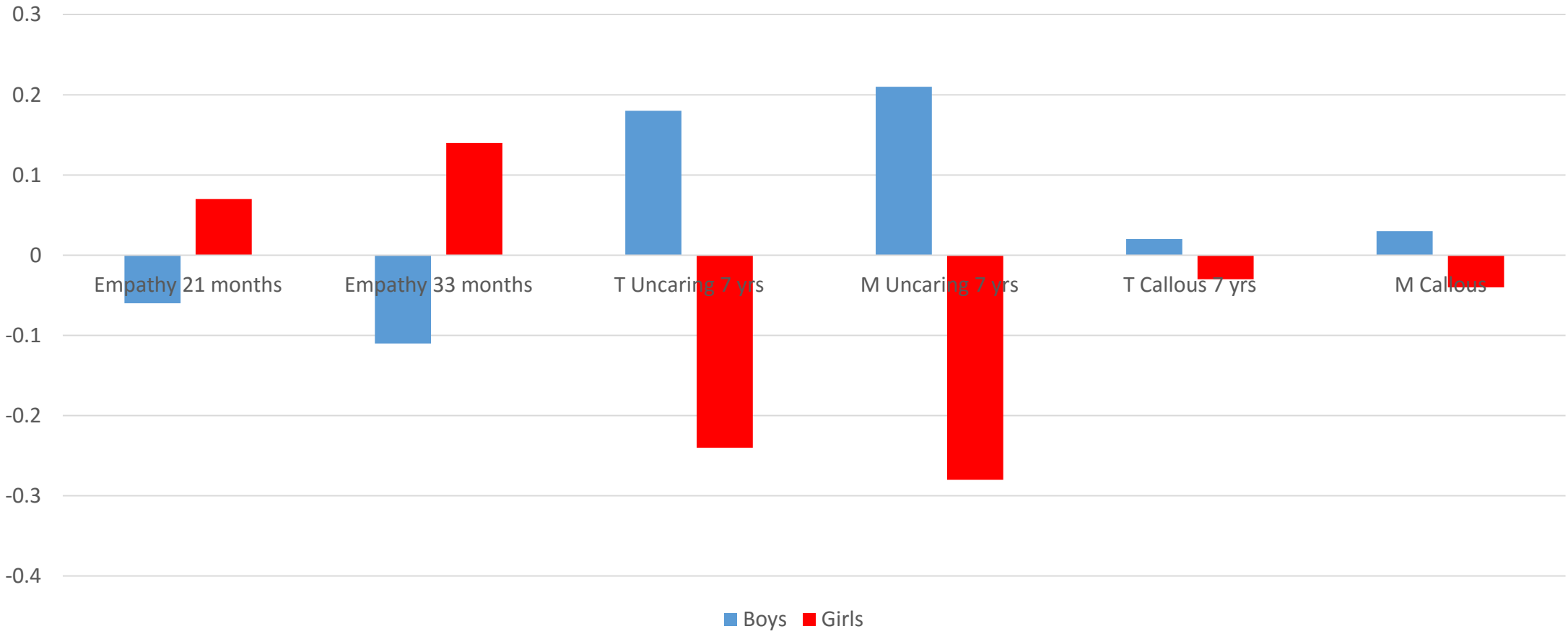
Cognitive flexibility factor score at 33 months does not predict teachers' ratings; all other associations are statistically significant

Maturational Differences in Communication and Language

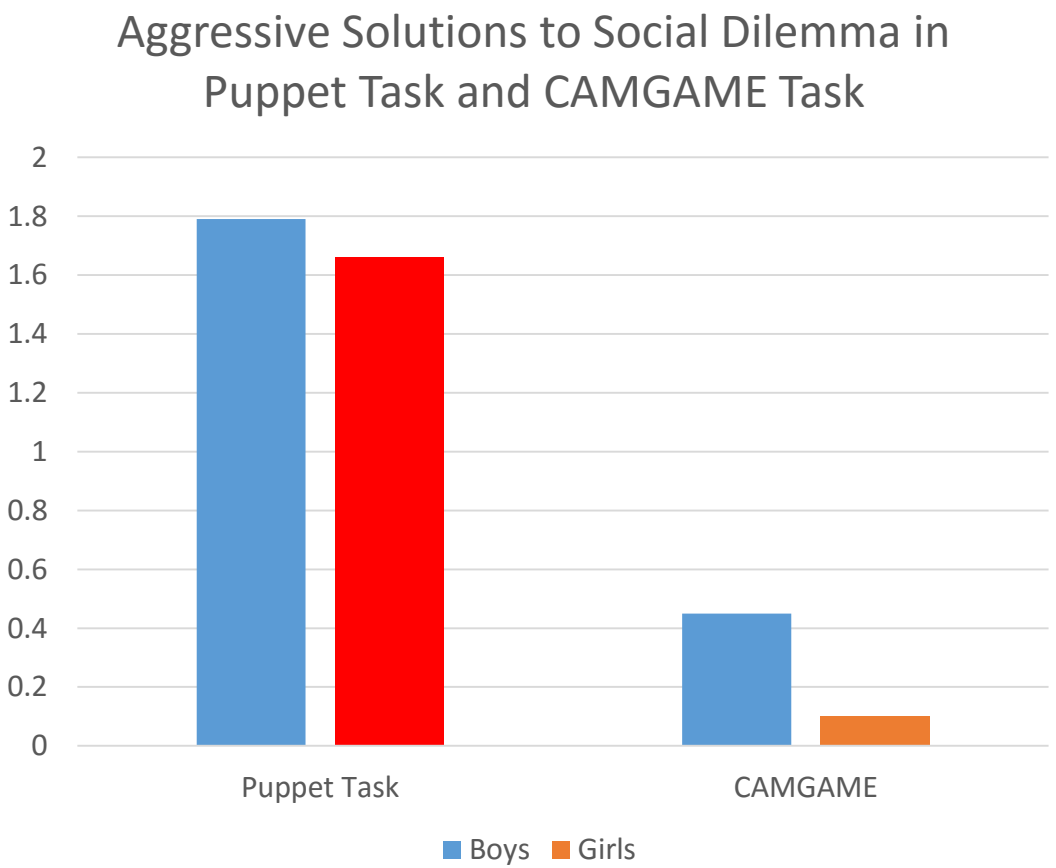


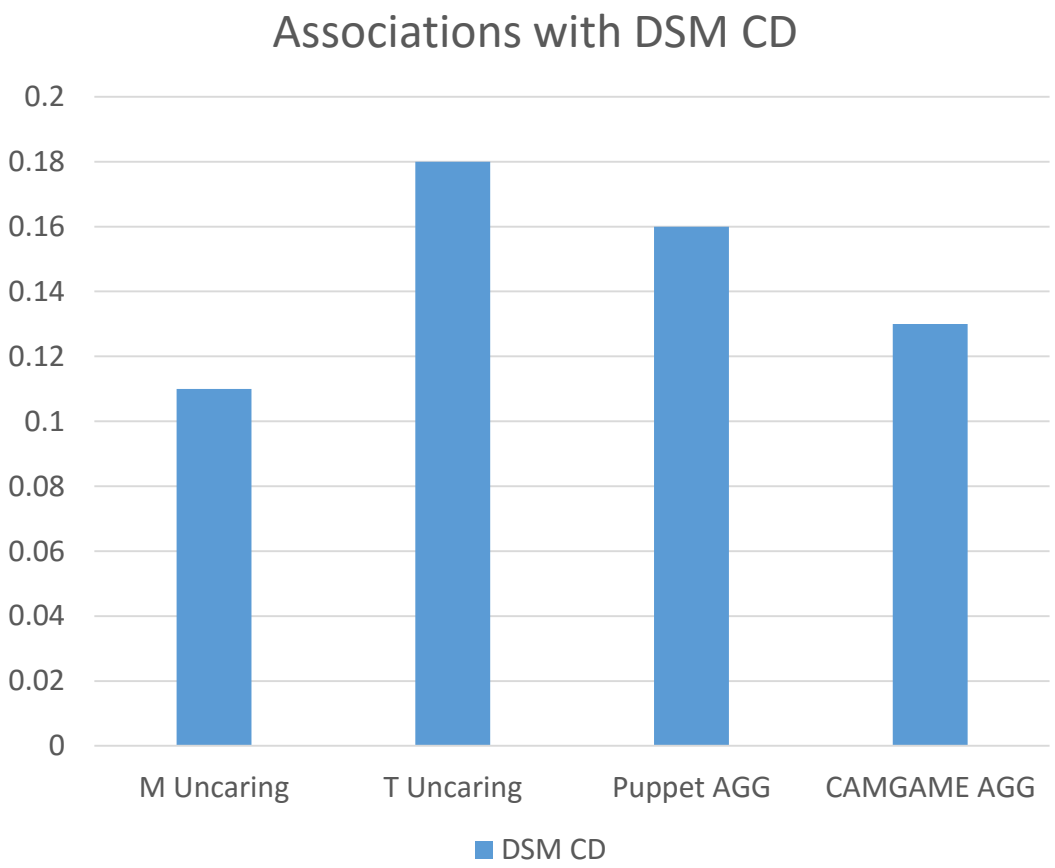
Informants' report of vocabulary was negatively associated with the CBCL aggression scale at 33 months, $r = -.14$, $p < .05$; language measures unrelated to 7 year outcomes

Gender Differences in Empathy and Callousness



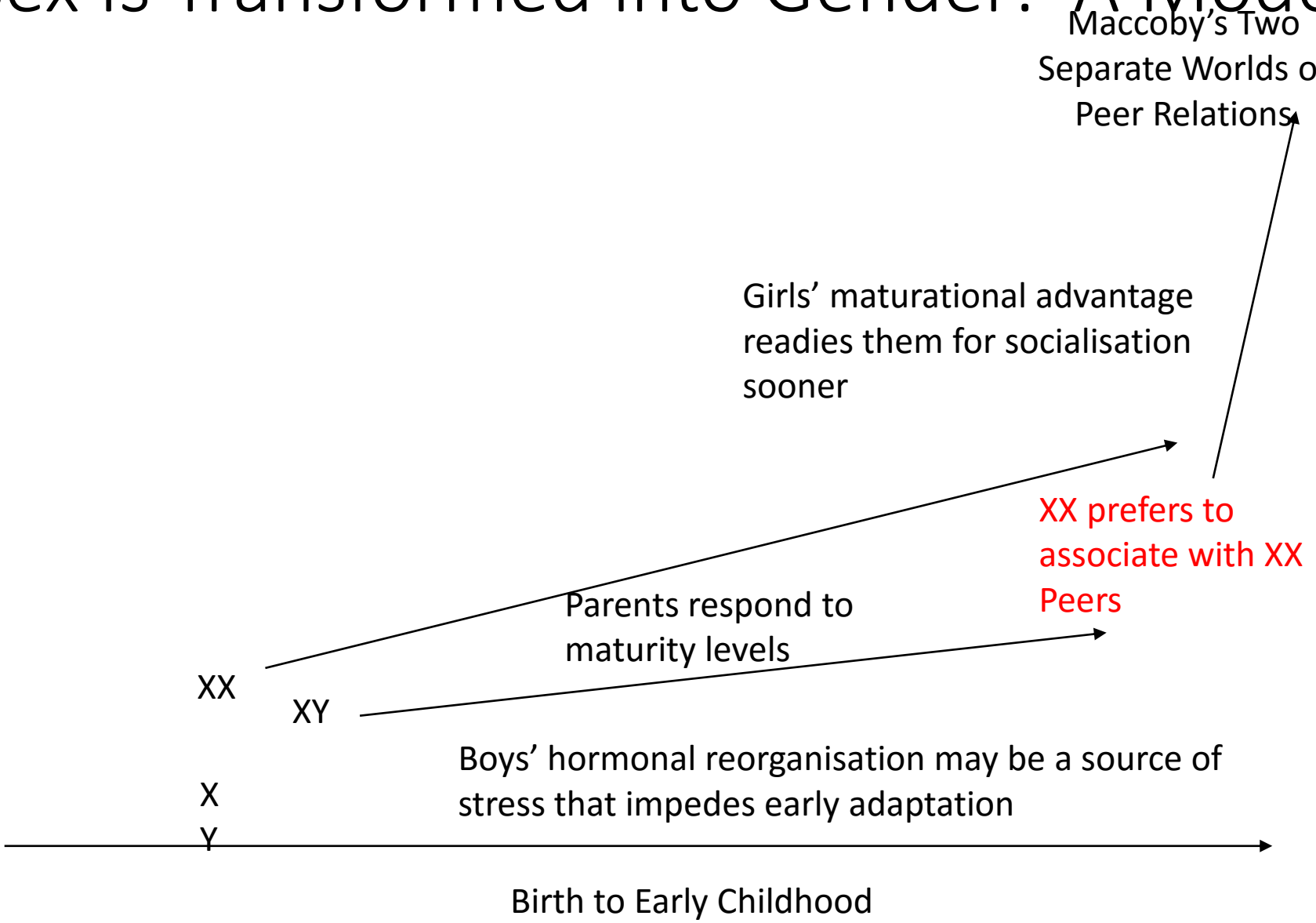
Gender Differences in Social Problem-Solving at Age 7



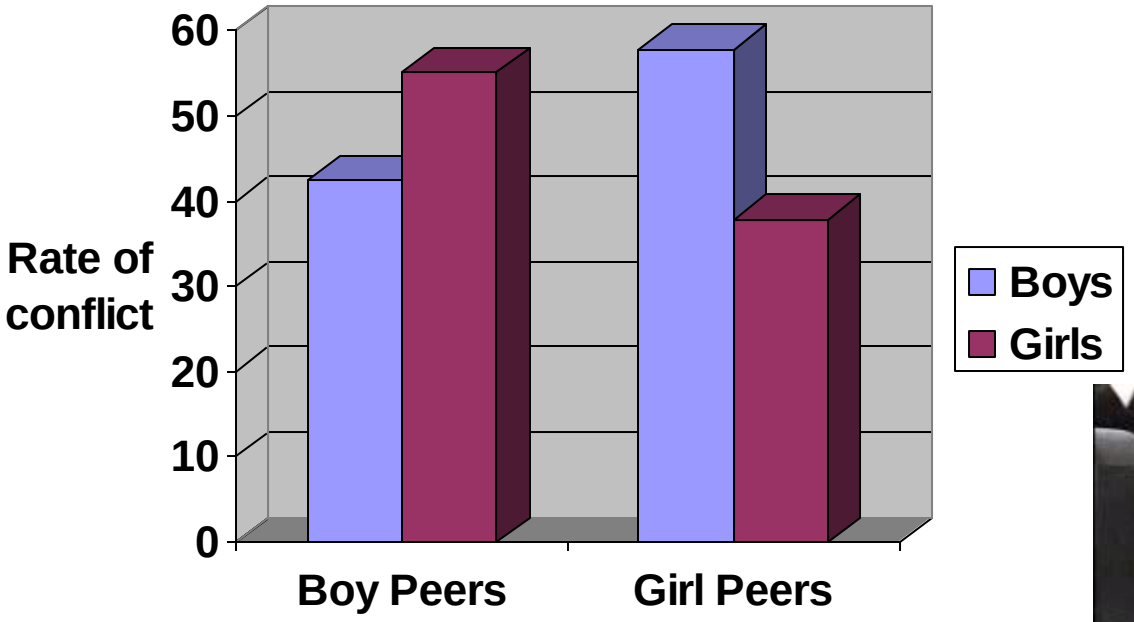


Boys significantly more likely to propose aggressive solutions on both tasks; aggressive choices are significantly linked to DSM CD

How Sex Is Transformed into Gender: A Model

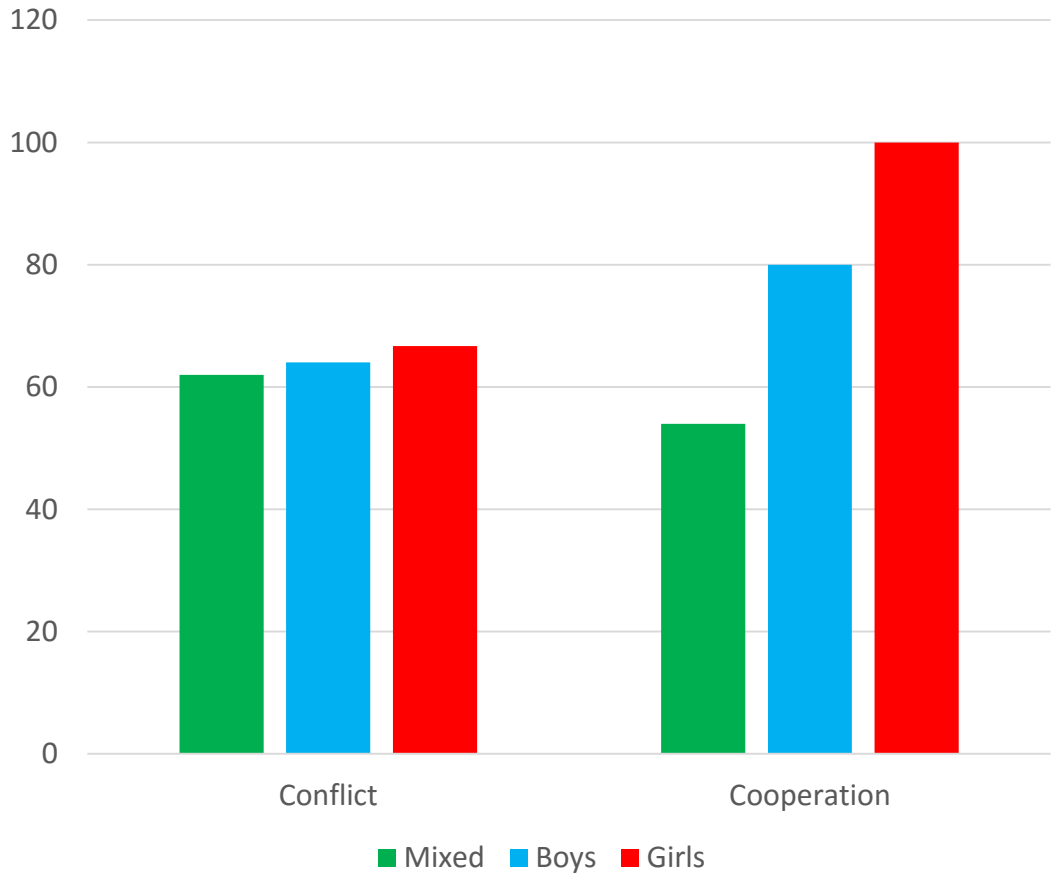


Gender Differences in Aggression Develop Between Toddlerhood and Middle Childhood; but Are the Sexes Already Incompatible?



NB: 9- to 12-month-old infants are significantly more likely to engage in conflict with opposite-sex peers

Dynamics of a Birthday Party: Conflict and Cooperation in Same-Sex and Mixed-Sex Groups



- Families did not know each other and were scheduled for parties at their convenience
- At 33 months, most parties produced mixed sex groups (N = 171)
- Of the same sex groups, N = 39 were all boys and N = 12 were all girls
- Mixed sex groups were less cooperative than same-sex groups

Voluntary Gender Segregation and the Consolidation of Gender Differences in Aggression

- Do girls and boys have different interests? Do they play in different ways? (Salim Hashmi will speak on this later today)
- Aggression is contagious: In gender-segregated groups, the minority of highly aggressive boys may make other boys more aggressive, in self-defence
- Is social skill contagious? Do a minority of girls make other girls more prosocial, and more successful at social manipulation?

Thanks

- To the families who have participated in the PICSSUM studies, the SLCDS and the CCDS
- To everyone who has worked on the CCDS over the last decade
- To the Medical Research Council for supporting our work
- To the Waterloo Foundation and Cardiff University for helping us establish CUCHDS to translate our findings into practice

CUCHDS