

Stress and Psychopathology Following Severe Deprivation: Differential Effects on Boys and Girls

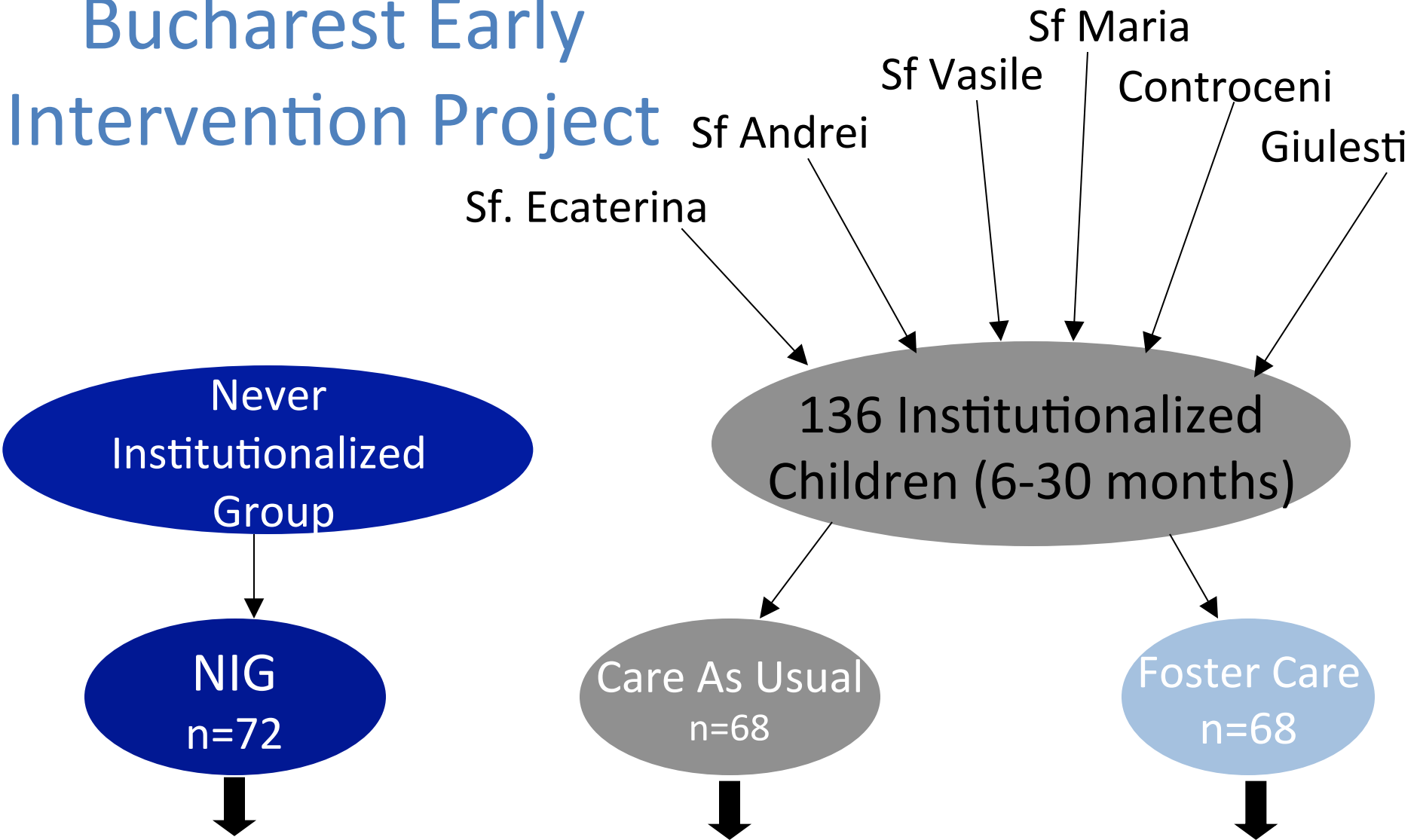


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Bucharest Early Intervention Project



Assessments at 30, 42, 54 months
Follow-ups at 8, 12 and 16 years

Main Effects of the Intervention



Cognitive development

Higher IQs

Enhanced expressive and receptive language

Physical development

Greater height and weight

Fewer stereotypies

Emotional development

More positive emotion expressed

Less anxiety and depression

Social development

Enhanced competence

More secure and organized attachments

Fewer attachment disorders

More social skills and better peer relatedness

Psychopathology

Fewer psychiatric symptoms, disorders and less impairment

Timing of Placement Effects

- *Stereotypies*
 - *Expressive language*
 - *Receptive language*
 - Reading
 - *Security of attachment*
 - Organization of attachment
 - *IQ at 54 months*
 - ERN during flanker 8 years
 - *EEG Alpha power 8 years*
 - *Teacher rated social skills 8 years*
 - Cortisol response 12 years
 - Respiratory SA response 12 years
- 12 months
 - 15 months
 - 15 months
 - 24 months
 - 24 months
 - 24 months
 - 24 months
 - 24 months
 - 20 months
 - 24 months
 - 20 months
 - 24 months
 - 18 months

Sex Differences in Early Childhood

- Attachment
- Psychopathology



Attachment

- At age 42 months, girls within FCG and NIG were more likely than boys to be classified as securely attached (Smyke et al., 2010)
- Intervention had no effect on development of secure attachment for boys (McLaughlin et al., 2012)
- Boys in FCG had higher scores on continuous rating of attachment security than boys in CAUG (McLaughlin et al., 2012)

Possible Explanations of Differences in Attachment

- May be that institutional deprivation has a more profound deleterious effect on boys' ability to develop a secure attachment postinstitutionalization
- Differential attention to boys versus girls by caregivers?

Psychopathology

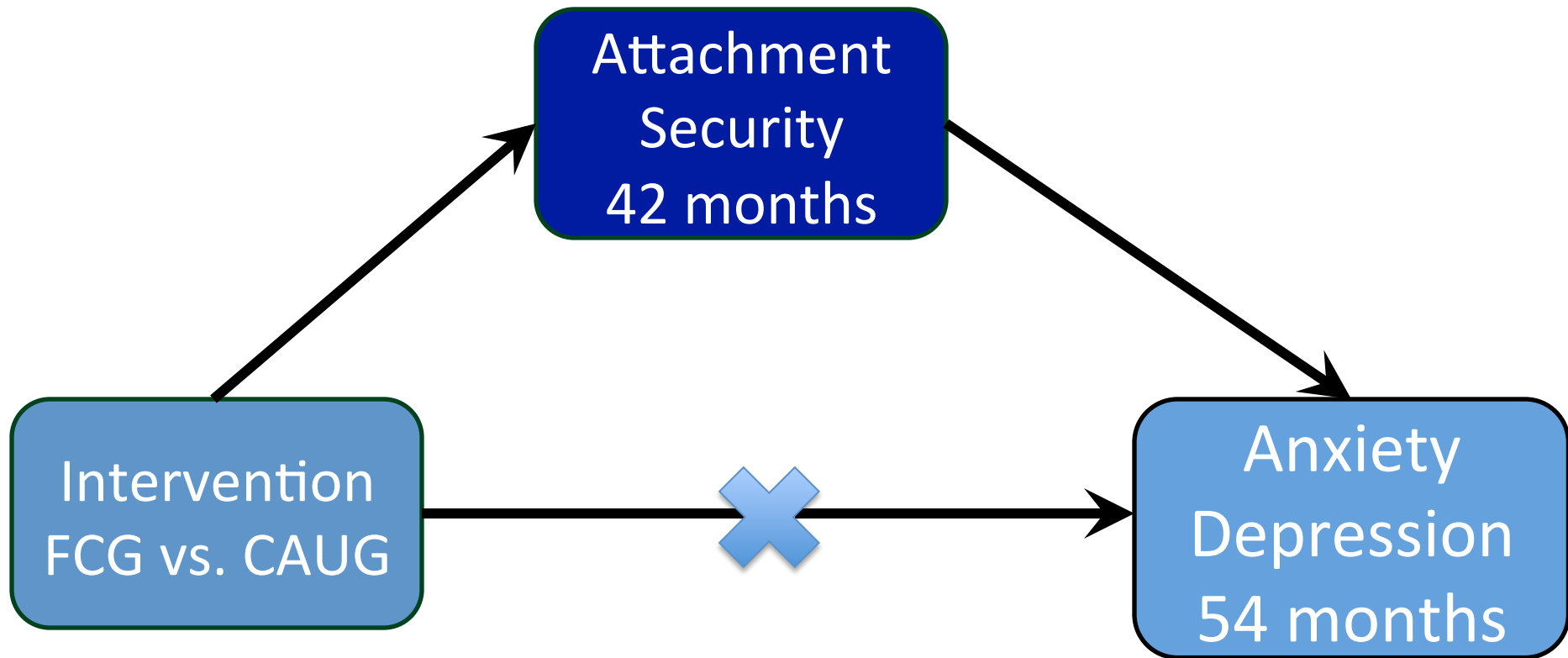
- At age 54 months, compared with girls, boys had more
 - symptoms of externalizing disorders
 - symptoms of internalizing disorders
 - functional impairment
 - symptoms of indiscriminately social/disinhibited Reactive Attachment Disorder (McGoron et al., 2009; Tibu et al., 2014)
- Unlike girls, boys had no reduction in total psychiatric symptoms following foster placement (Zeanah et al., 2009)

Attachment, Psychopathology & Intervention Effects

- At age 54 months
 - development of attachment security fully mediated intervention effects on internalizing disorders for FC girls but not boys
 - Intervention had no effect on internalizing disorders or development of secure attachment in boys (but did for girls)

McLaughlin et al., 2012

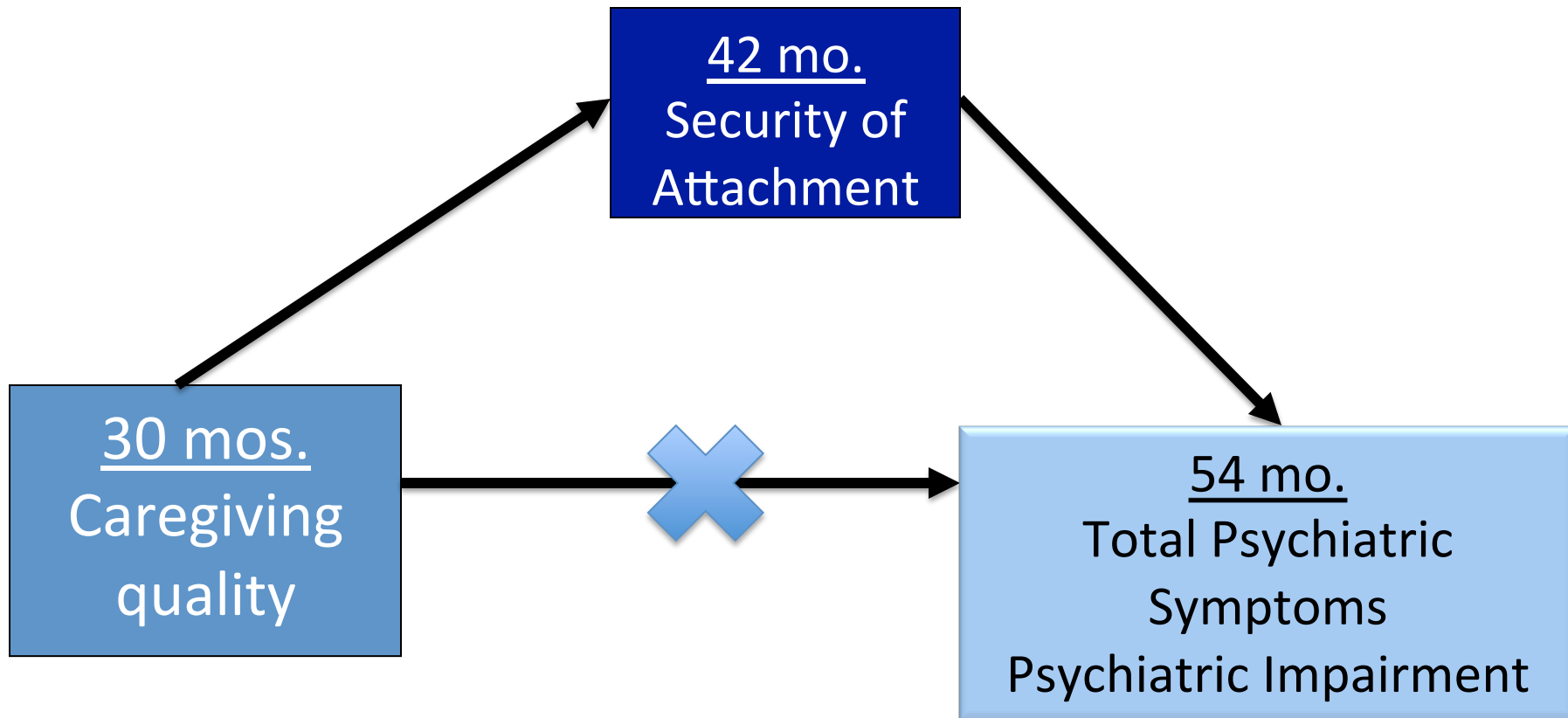
Testing Foster Care Intervention Mechanism (Girls Only)



Attachment, Psychopathology & Caregiving Environment

- At age 54 months, girls in high-quality foster care had less severe internalizing and ADHD symptomatology than girls in government-sponsored foster care (Tibu et al., 2014)
- Boys did not differ in internalizing symptoms based on quality of foster care (Tibu et al., 2014)
- Boys were more symptomatic than girls regardless of their caregiving environment (Zeanah et al., 2009) and regardless of type of foster care (Tibu et al., 2014)

Attachment mediates intervention effects on psychopathology

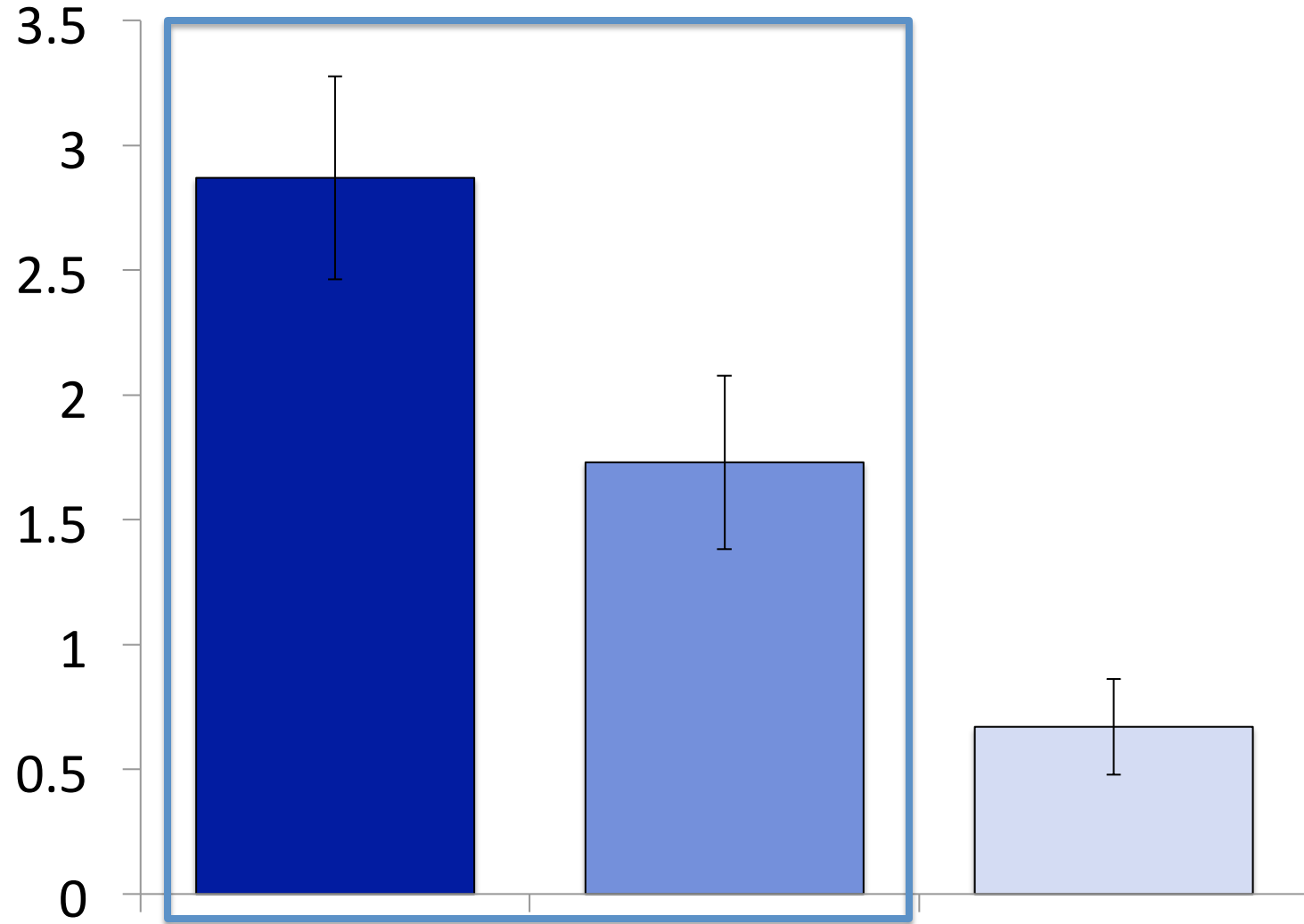


Sex Differences at Age 12

- Psychopathology
- Stress response
- Overall competence



ITT results at age 12 years: Externalizing Signs in Boys (Humphreys et al., 2015)



CAUG

FCG

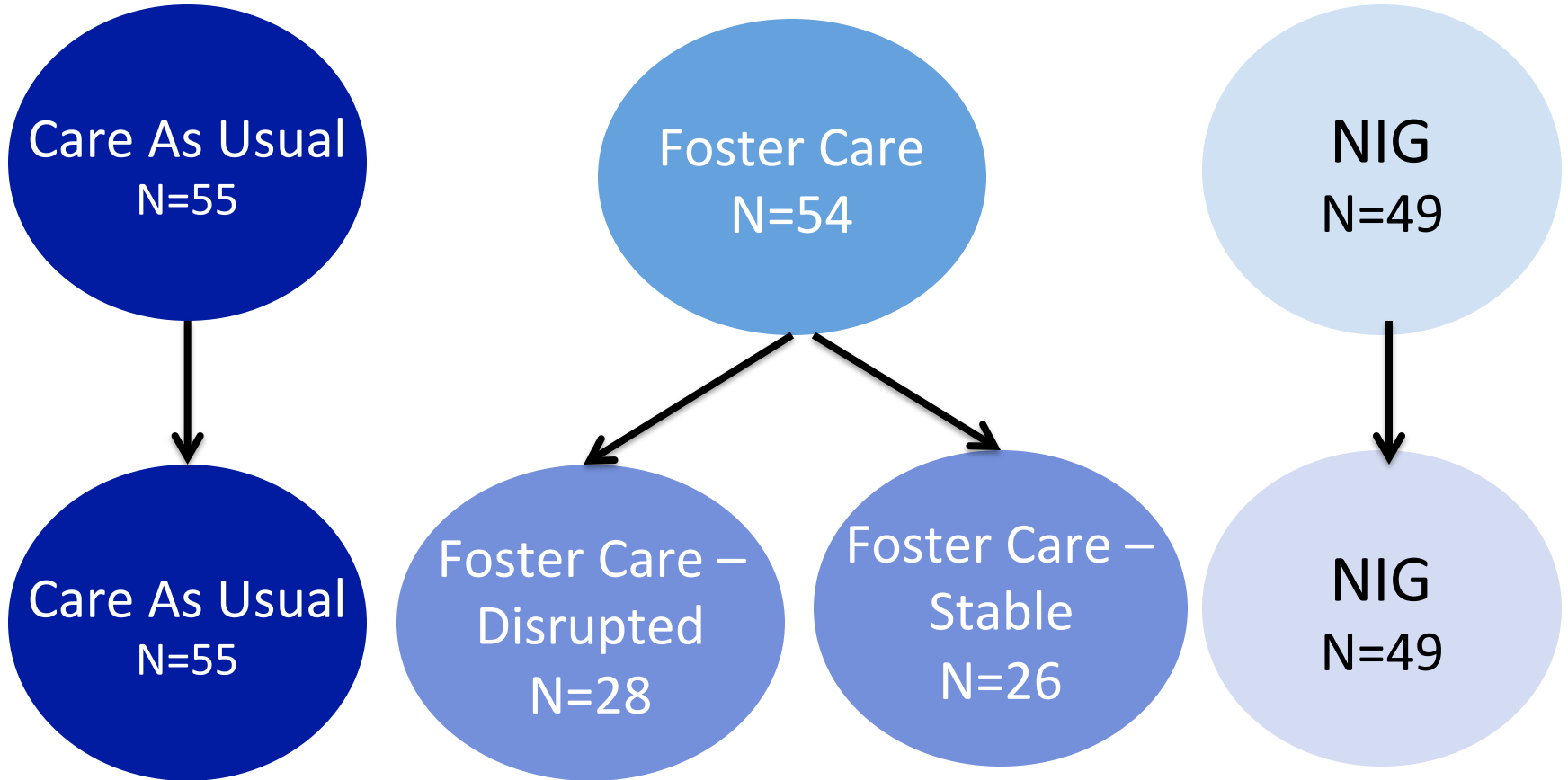
NIG

Humphreys et al., (2015)

Beyond Intent to Treat Analyses

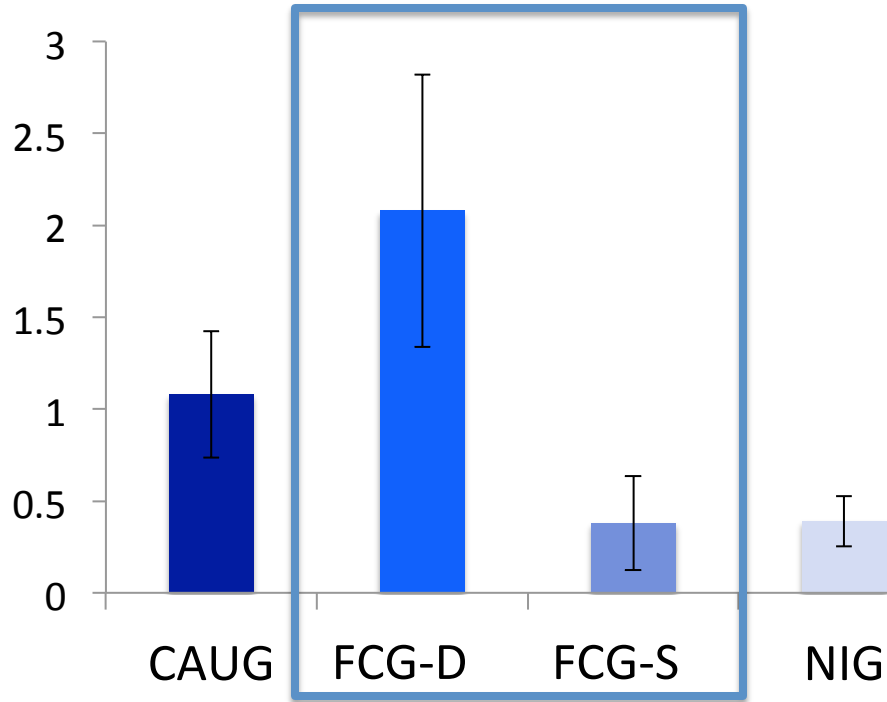
- What we have learned:
 - High quality foster care in early childhood reduced psychopathology
 - Results attenuated at age 12 years
- Other questions
 - Does stability of placement in foster care matter?
 - Dichotomize into stable and unstable BEIP foster care
 - All CAUGs have experienced disruptions

Examined 4 groups at age 12

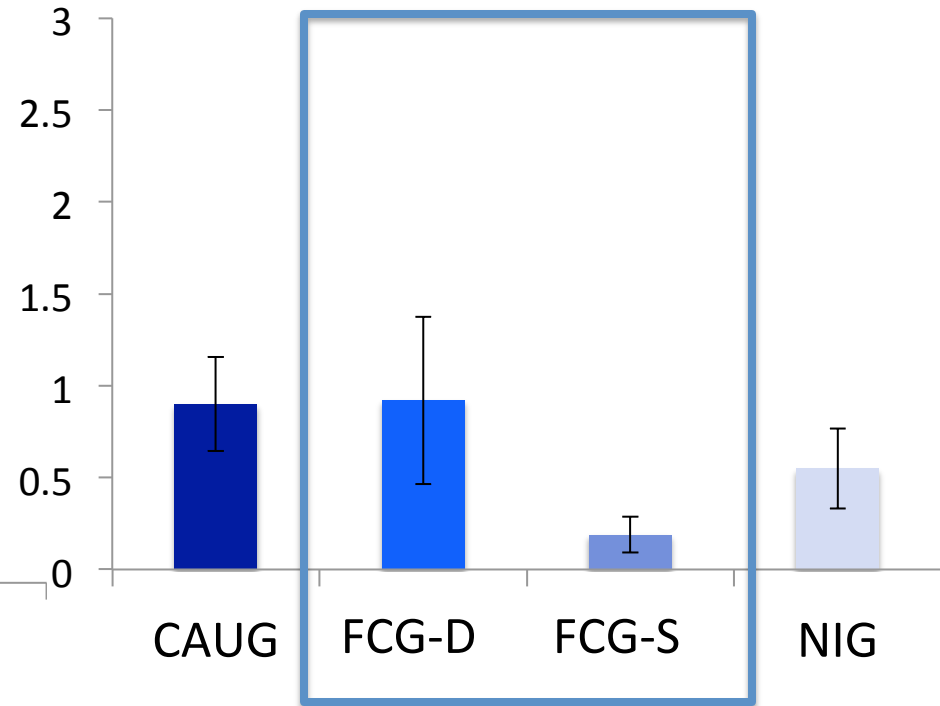


Internalizing Signs

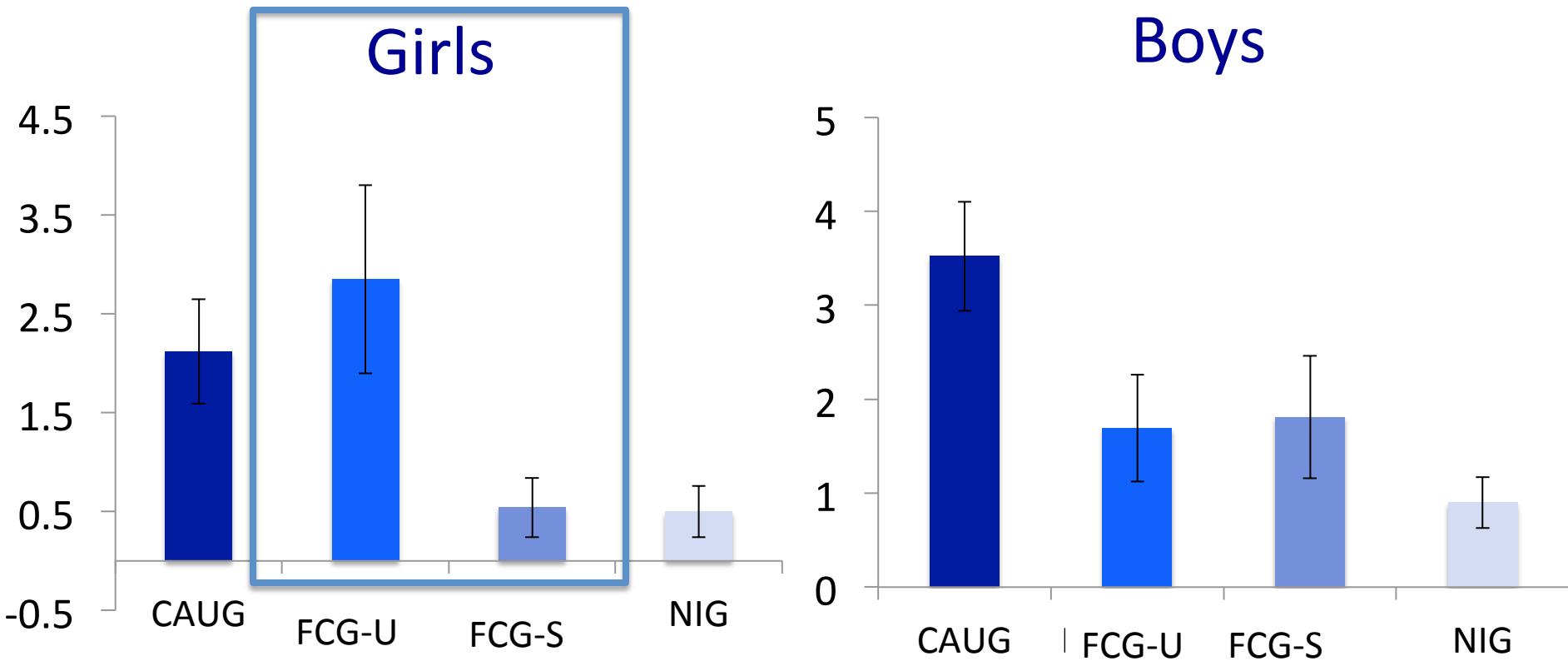
Girls



Boys

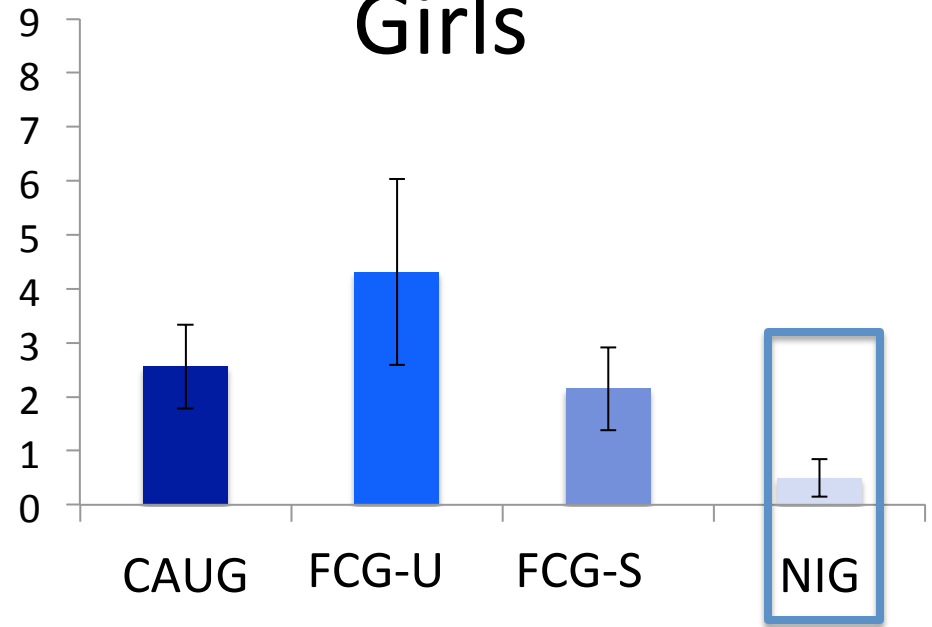


Externalizing Signs

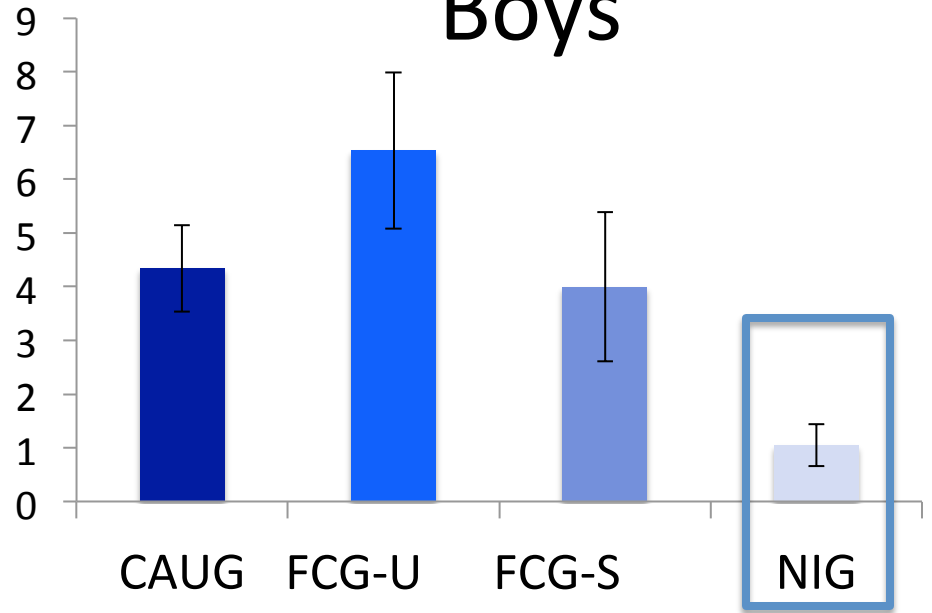


ADHD Signs

Girls



Boys



Psychopathology at 12 years Summary

- Externalizing symptoms were lower in FCG than CAUG due to reductions in boys' symptoms
- Even boys who received a lesser dose of the foster care intervention demonstrated reduced levels of externalizing psychopathology
- Placement disruptions had more effect on girls' vs. boys' psychopathology

Development of Stress Response Systems

- Disruptions in stress response system functioning are thought to be a central mechanism by which exposure to adverse early-life environments influences human development
- Extensive evidence suggests that caregivers play a critical role in regulating responses to stress in children
- Early regulation of stress responses by caregivers may have lasting effects on stress response system development

Institutional Rearing

- Regimented environment leads to similar experience across children
- Experience most closely resembles the type of early-life adversity used in animal studies
- Some studies of non-human primates indicate blunted reactivity of the HPA axis following maternal separation

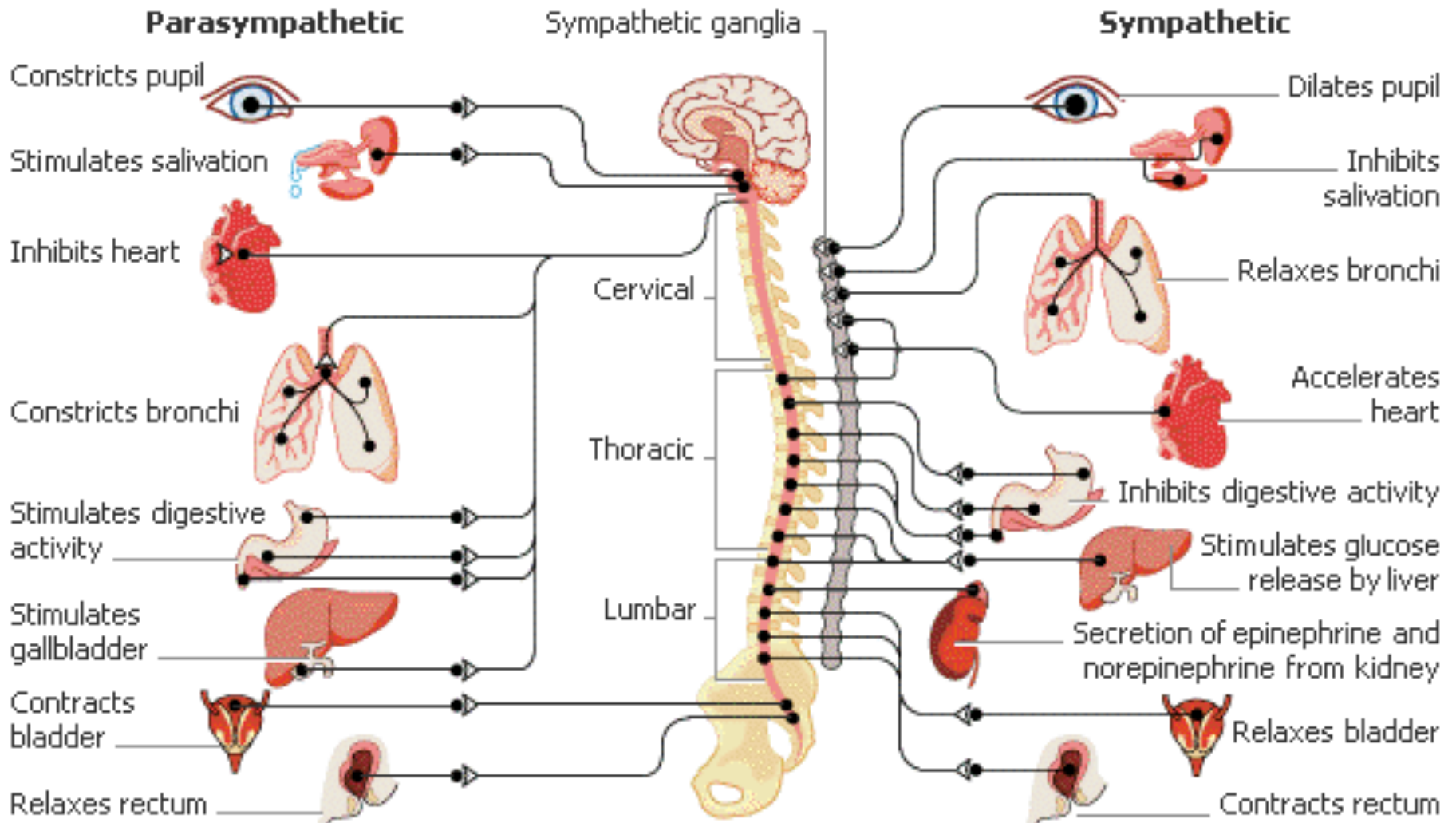


Institutional Rearing

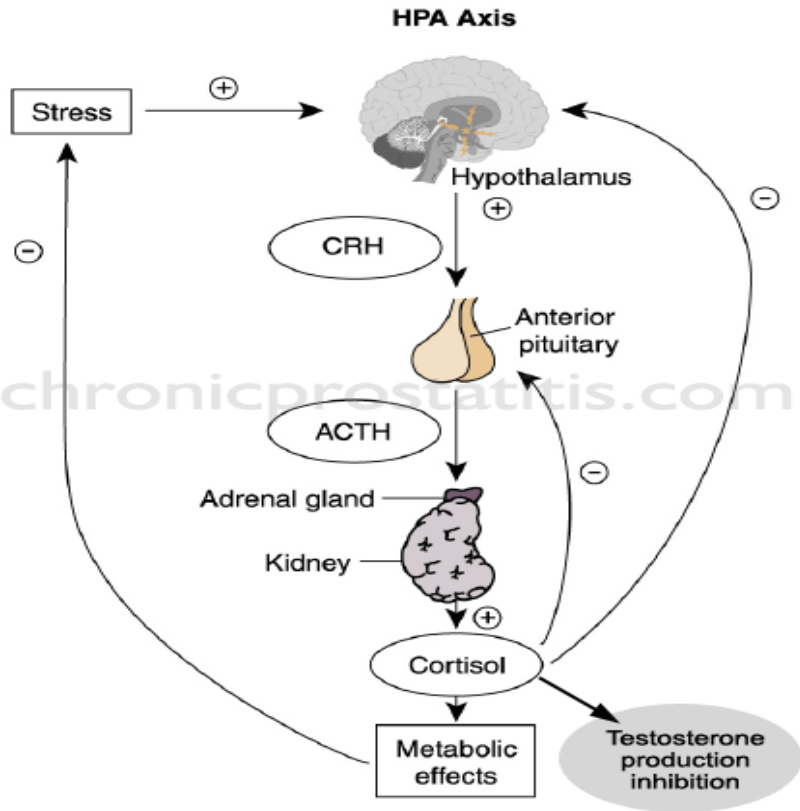
- Isolation
 - Little interaction with peers or adults
 - No selective attachments
- Lack of psychological investment by caregivers
 - High child/caregiver ratio
 - Rotating shifts
- Low cognitive complexity
 - Infrequent language exposure
 - Highly routinized environment



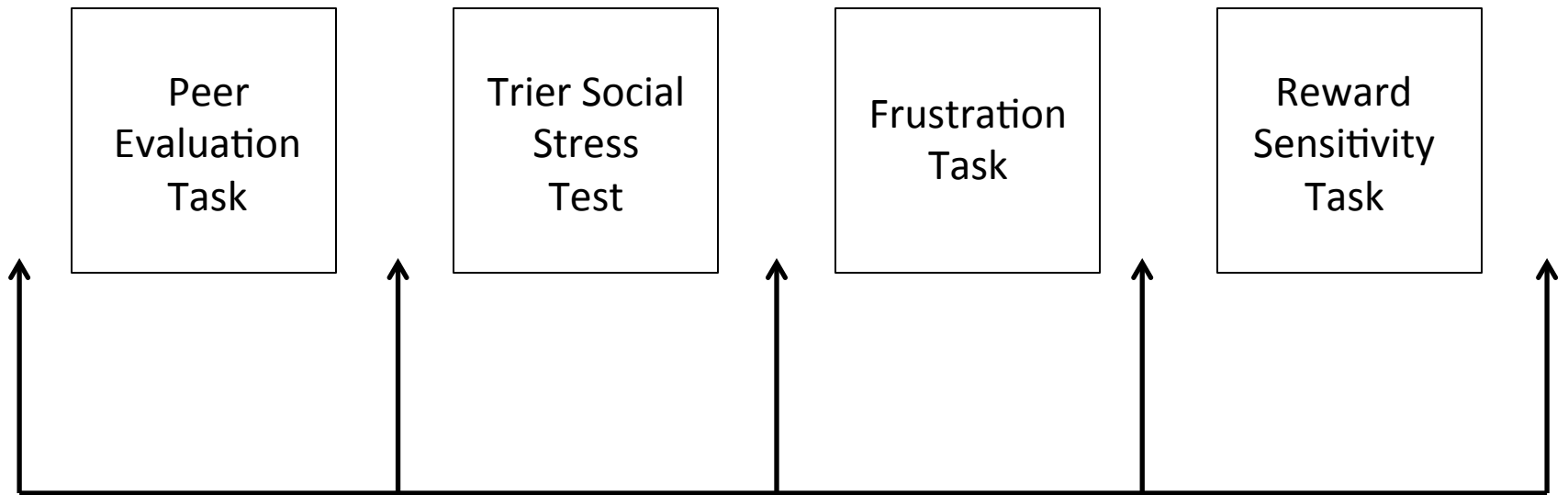
Autonomic Nervous System



HPA Axis



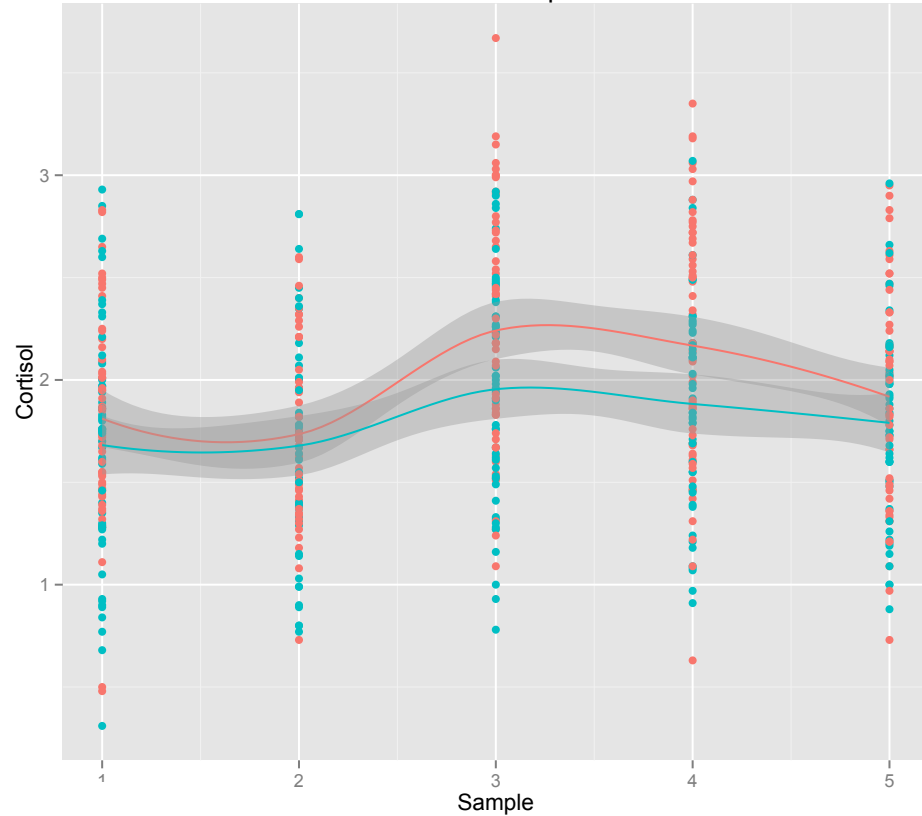
Cortisol



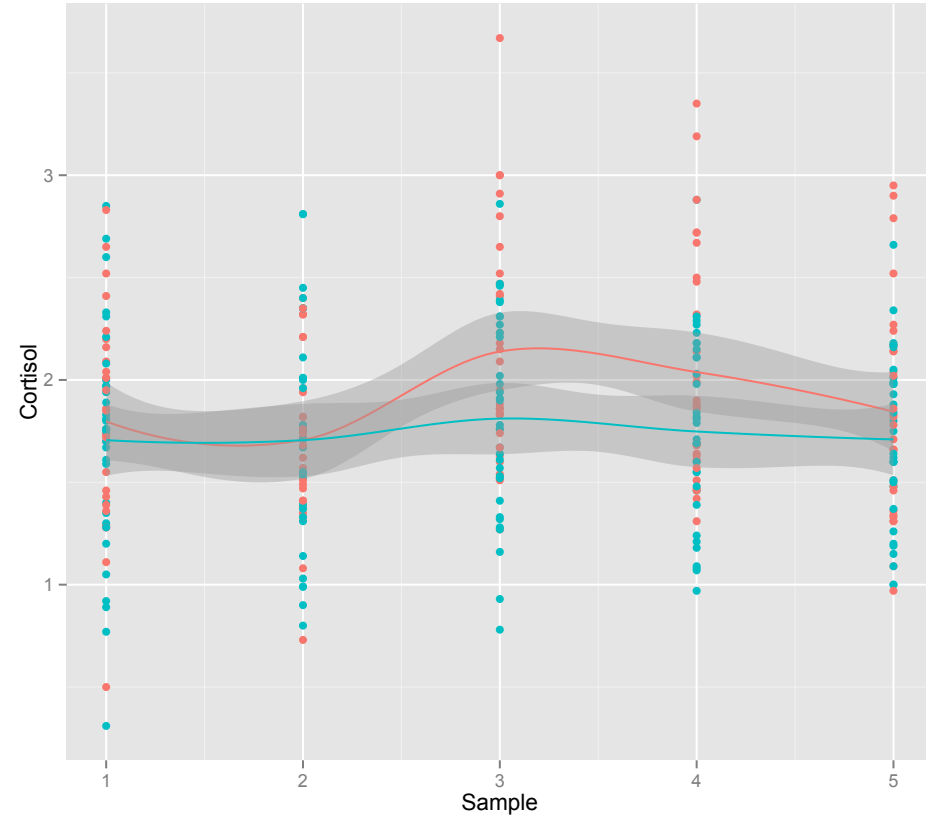
Saliva Samples

Sex Differences in Cortisol

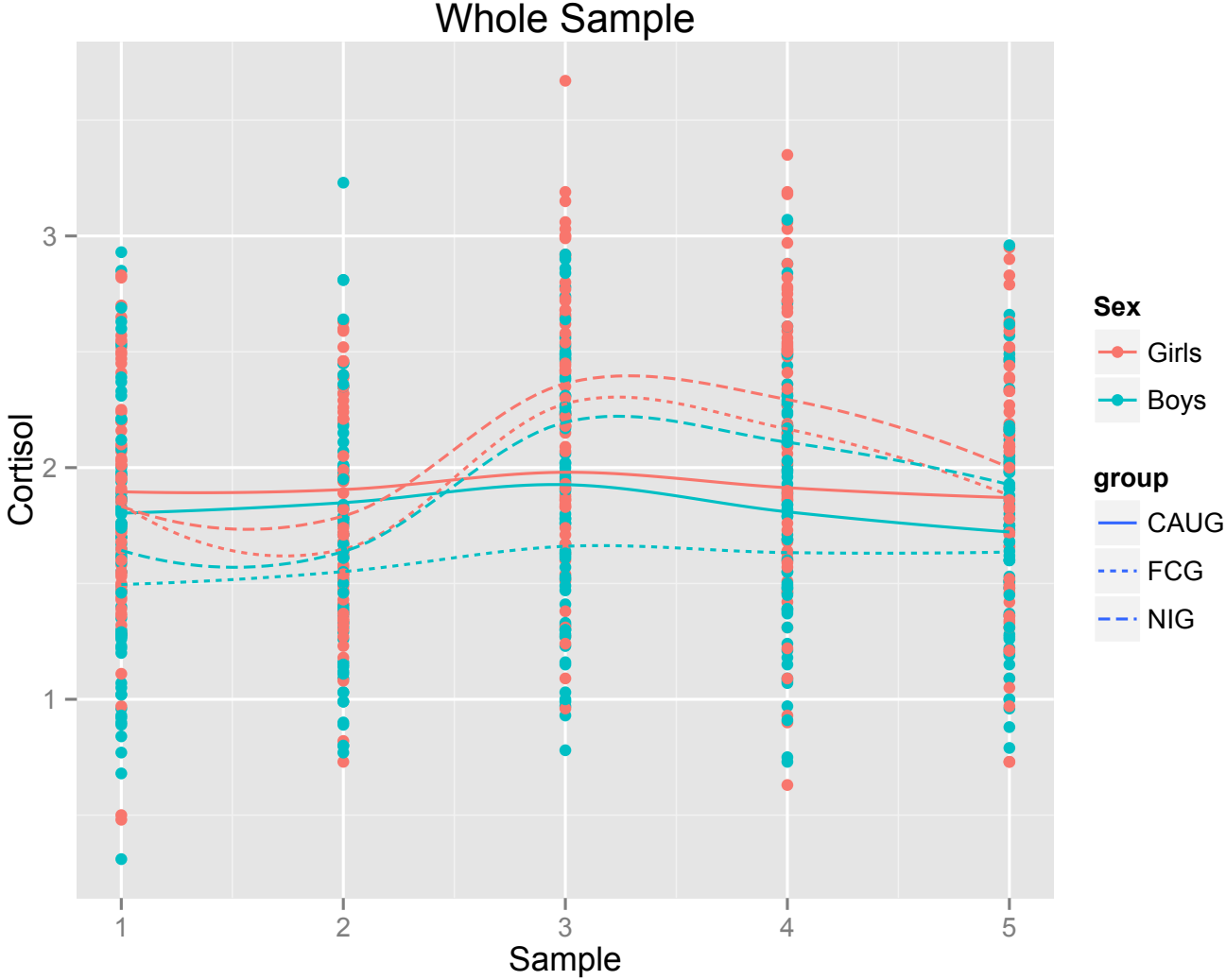
Whole Sample



EIG



Sex*Group Differences in Cortisol



Competence: Preliminary Findings

- Competence at 12 years
 - Physical Health
 - Mental Health
 - Academic Performance
 - Family Relations
 - Peer Relations
 - Alcohol & Tobacco Use
 - Risky Behaviors

Sex differences: EIG, 6/7 Competencies

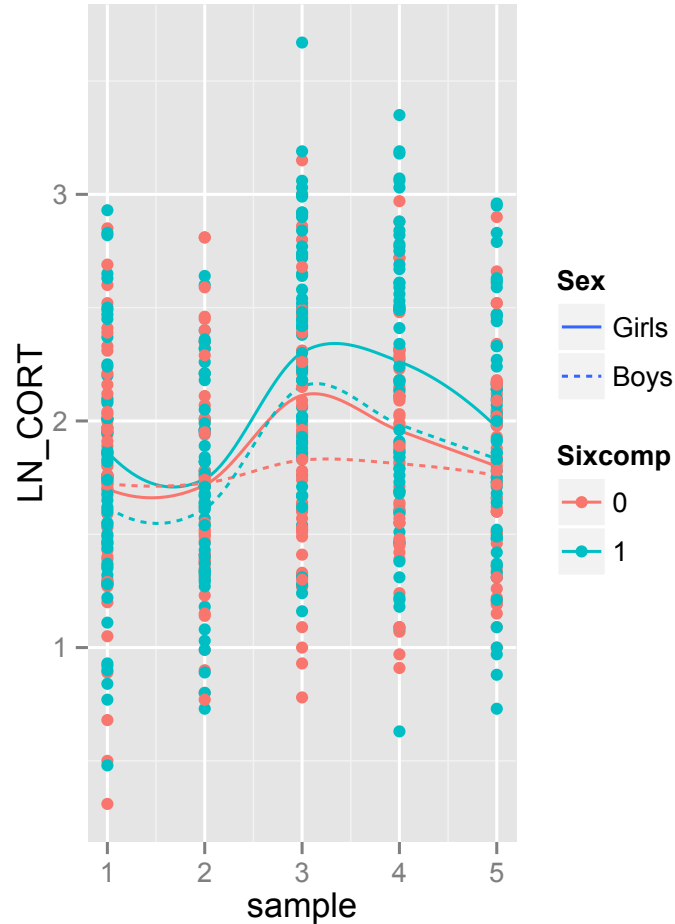
6 Competencies	Girls	Boys	Total
No	24 (48%)	43 (77%)	67
Yes	26 (52%)	13 (23%)	39
Total	50	56	106

p = .002

Sex by ITT: 6/7 Competencies

6 Competencies	CAUG girls	CAUG boys	FCG girls	FCG boys	Total
No	13 (54%)	24 (86%)	11 (42%)	19 (68%)	67
Yes	11 (46%)	4 (14%)	15 (58%)	9 (32%)	39
Total	24	28	26	26	106

Sex*Competence Differences in Cortisol



Implications for Supporting Recovery from Adverse Experiences

- There are different areas and ages in which boys and girls show vulnerabilities
- By targeting a specific domain—security of attachment to the primary caregiver—it may be possible to reduce maladaptation in multiple domains, especially in children with a history of early caregiving adversity

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