



**YALE CHILD
STUDY CENTER**

Where discovery inspires care

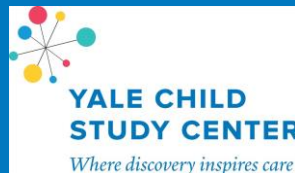
Irritability and anger outbursts in children and adolescents

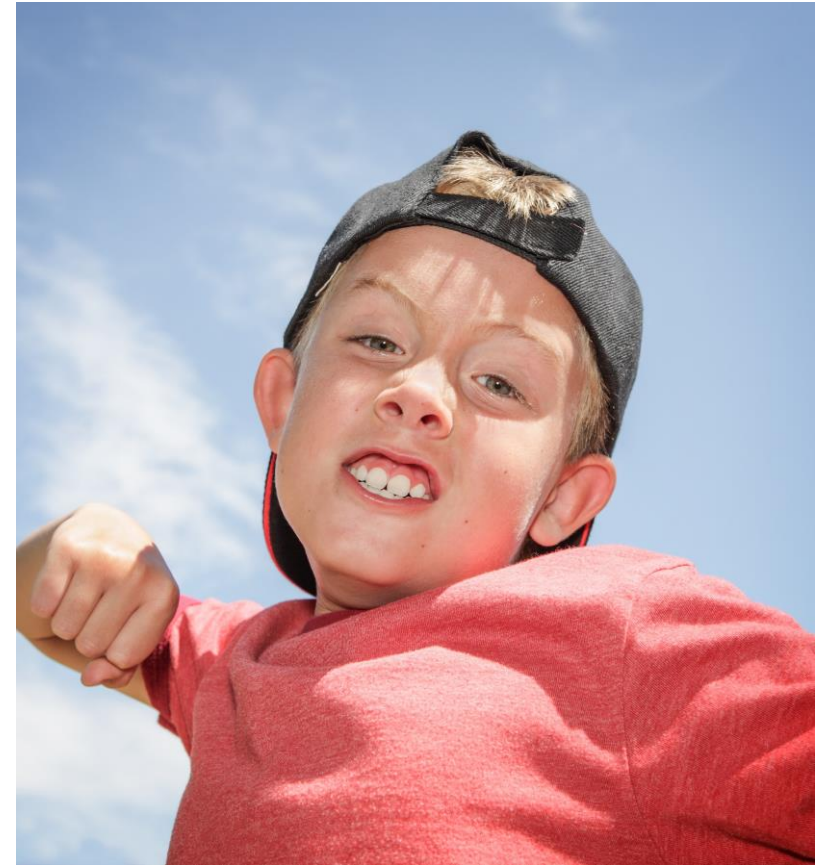
YCSC Affective Youth (YAY) Lab

Wan-Ling Tseng, PhD

Yale Medicine

Yale SCHOOL OF MEDICINE





Irritability in Children



Common Triggers



Clinical Irritability

- Increased propensity to **anger/frustration**
- **Temper outbursts**
- **Irritable mood** b/w outbursts
- Disruptive mood dysregulation disorder (DMDD)



Common

- 3-5% of youth
- 75% inpatient admissions
- 60% outpatient tx-seeking cases

Irritability Anger Aggression

Impairing

- hospitalization
- school suspensions
- service use
- psychotropic medications

Transdiagnostic

- Present in many pediatric disorders, e.g., DMDD, autism, ADHD, ODD, anxiety, and depression

**Anxiety
Depression**



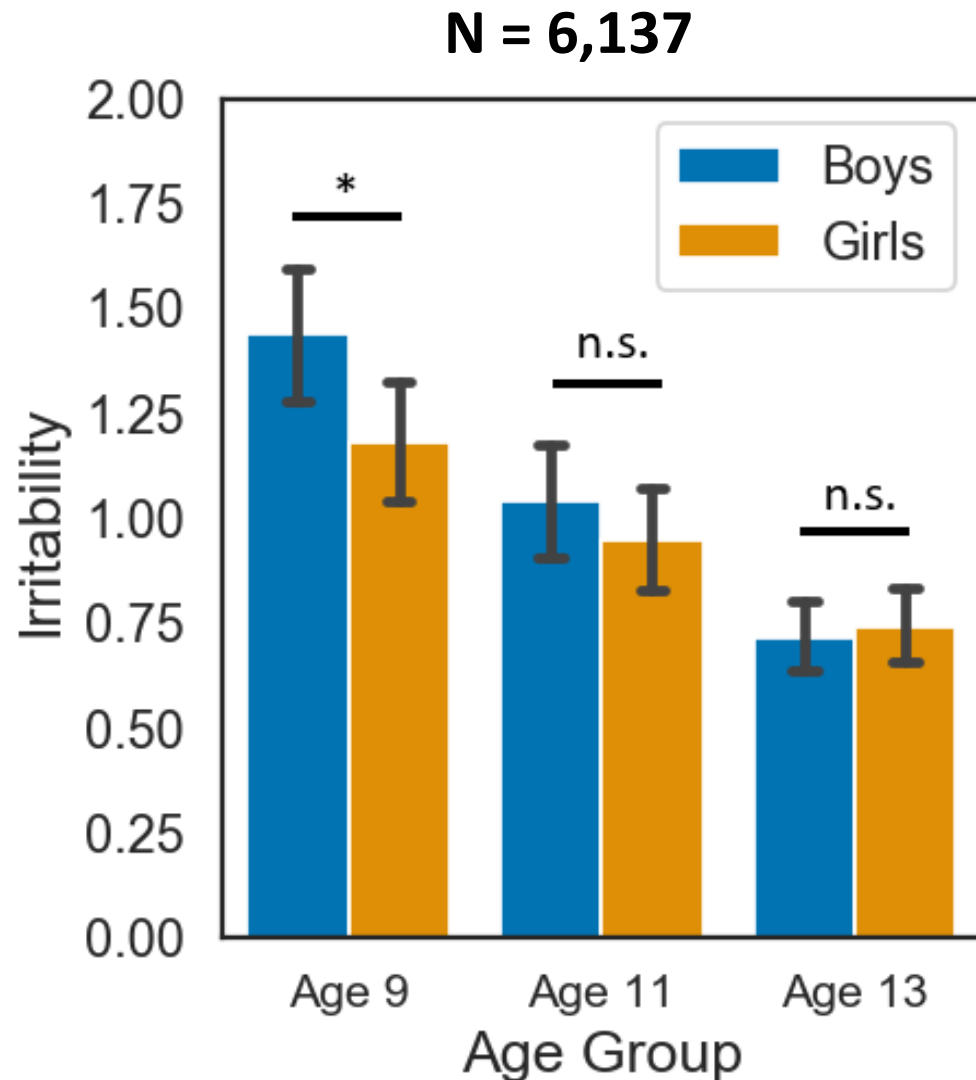
Suicidality



**Low
Income
Education**



Age x Sex interaction in Irritability

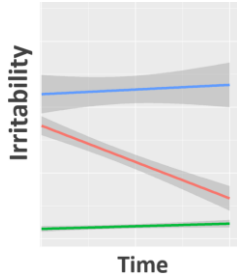


Irritability is higher in childhood and gradually decreases with age from childhood to adolescence, especially for boys.

Individual differences in developmental trajectories of irritability

Ycsc Affective Youth (YAY) Lab

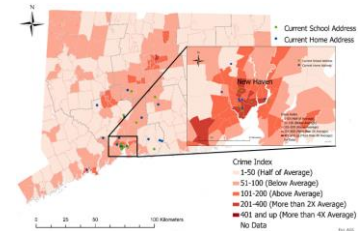
PI: Wan-Ling Tseng, PhD



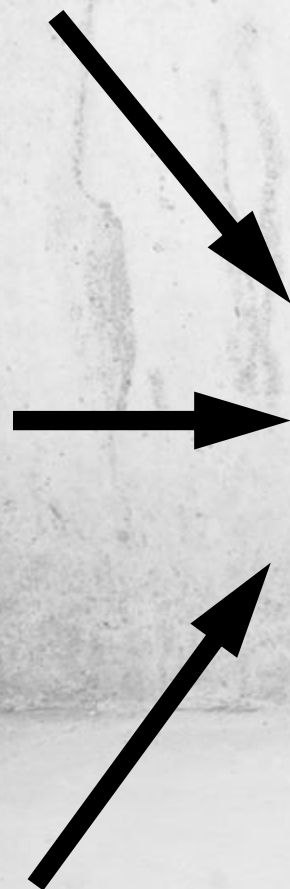
Development and etiology of **irritability**, **anger**, and **aggression**



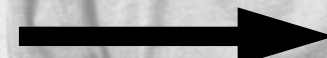
Neural mechanisms of irritability



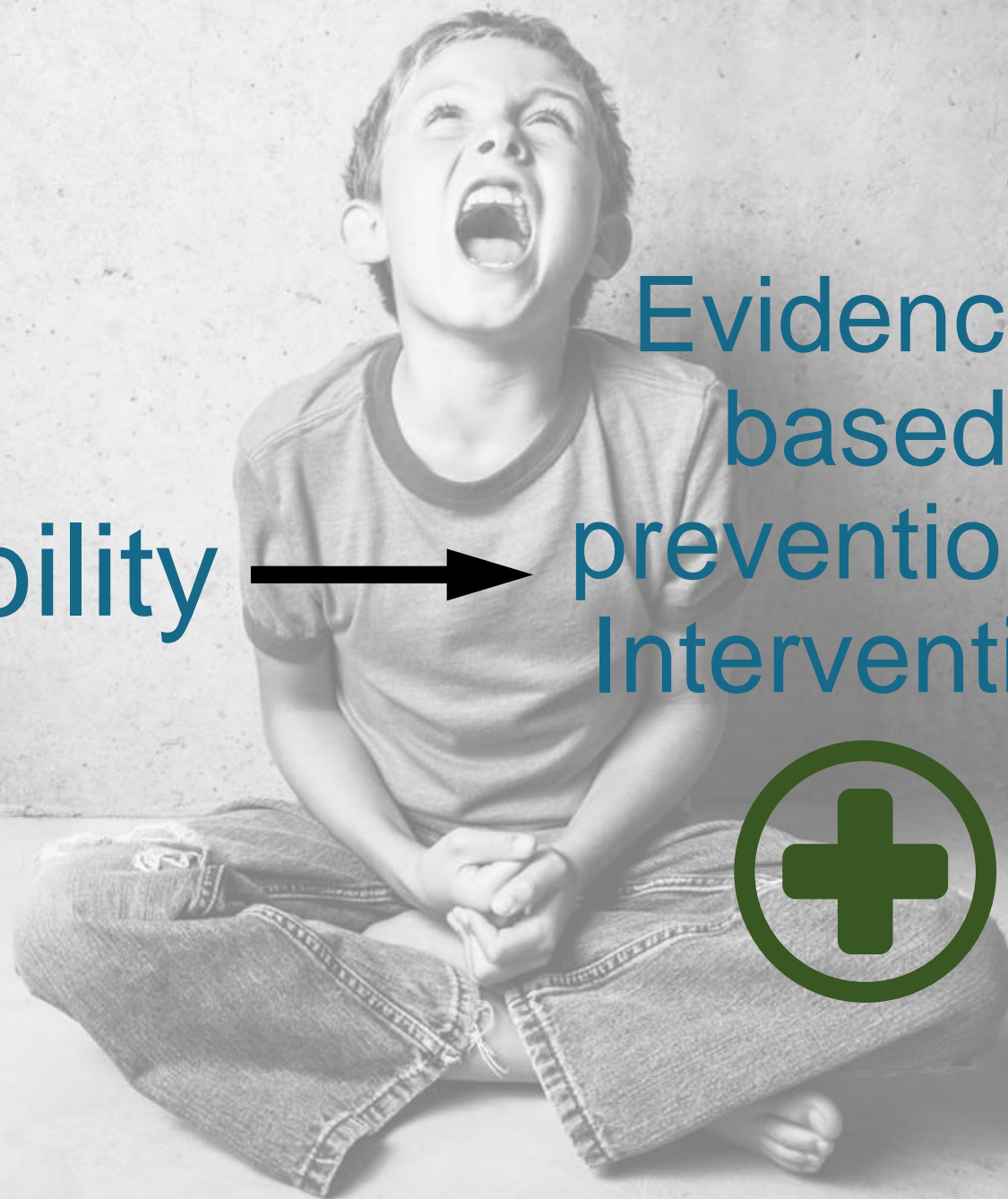
Environmental effects (e.g., pollutants/chemicals, crime, social and family functioning) on brain development and childhood emotional and behavioral problems



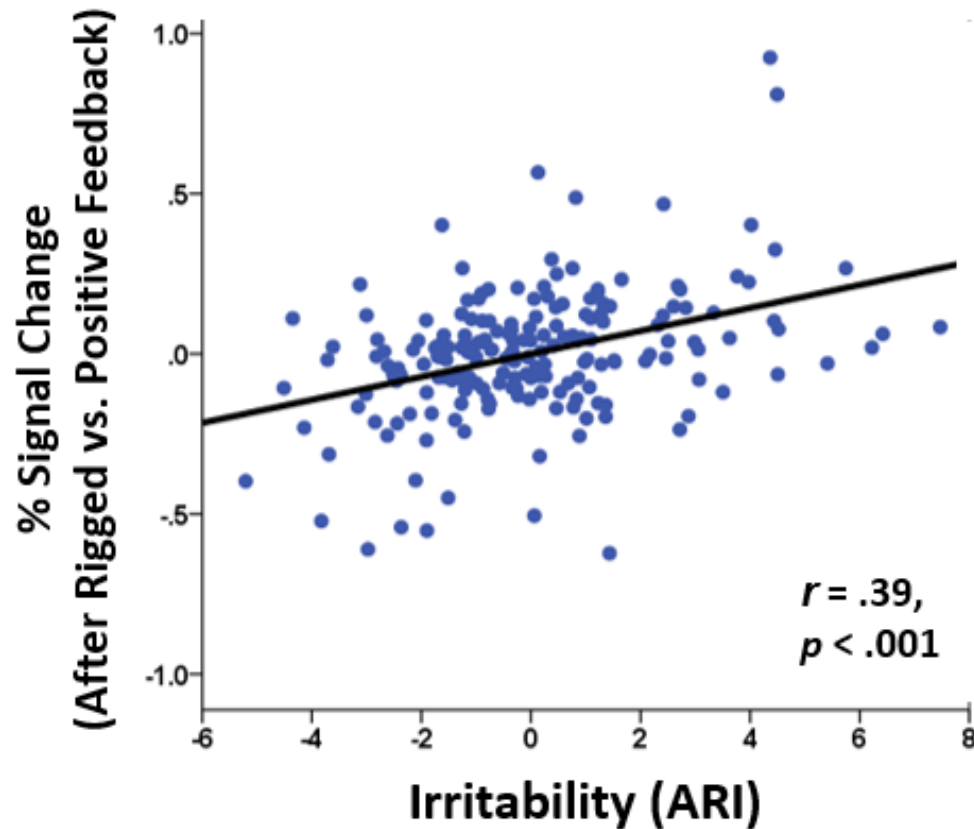
Irritability



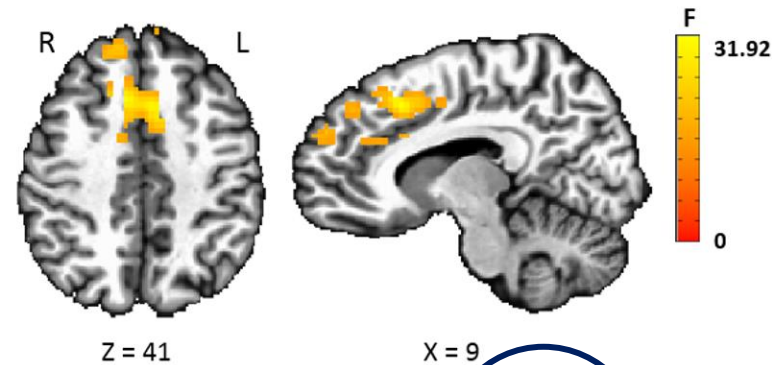
Evidence-based
prevention &
Intervention



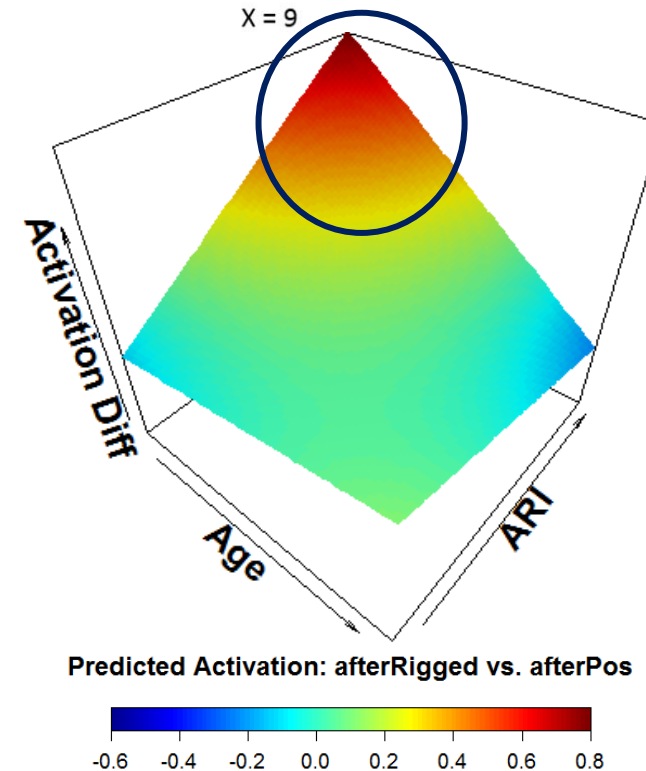
Irritability Associated with Increased Brain Activation Following Frustration



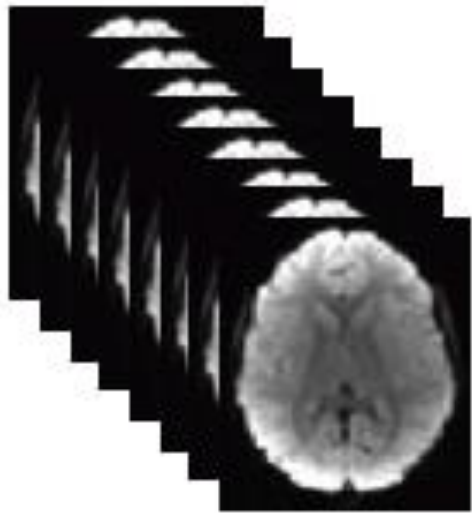
N=195, *M*age = 12.9 yrs



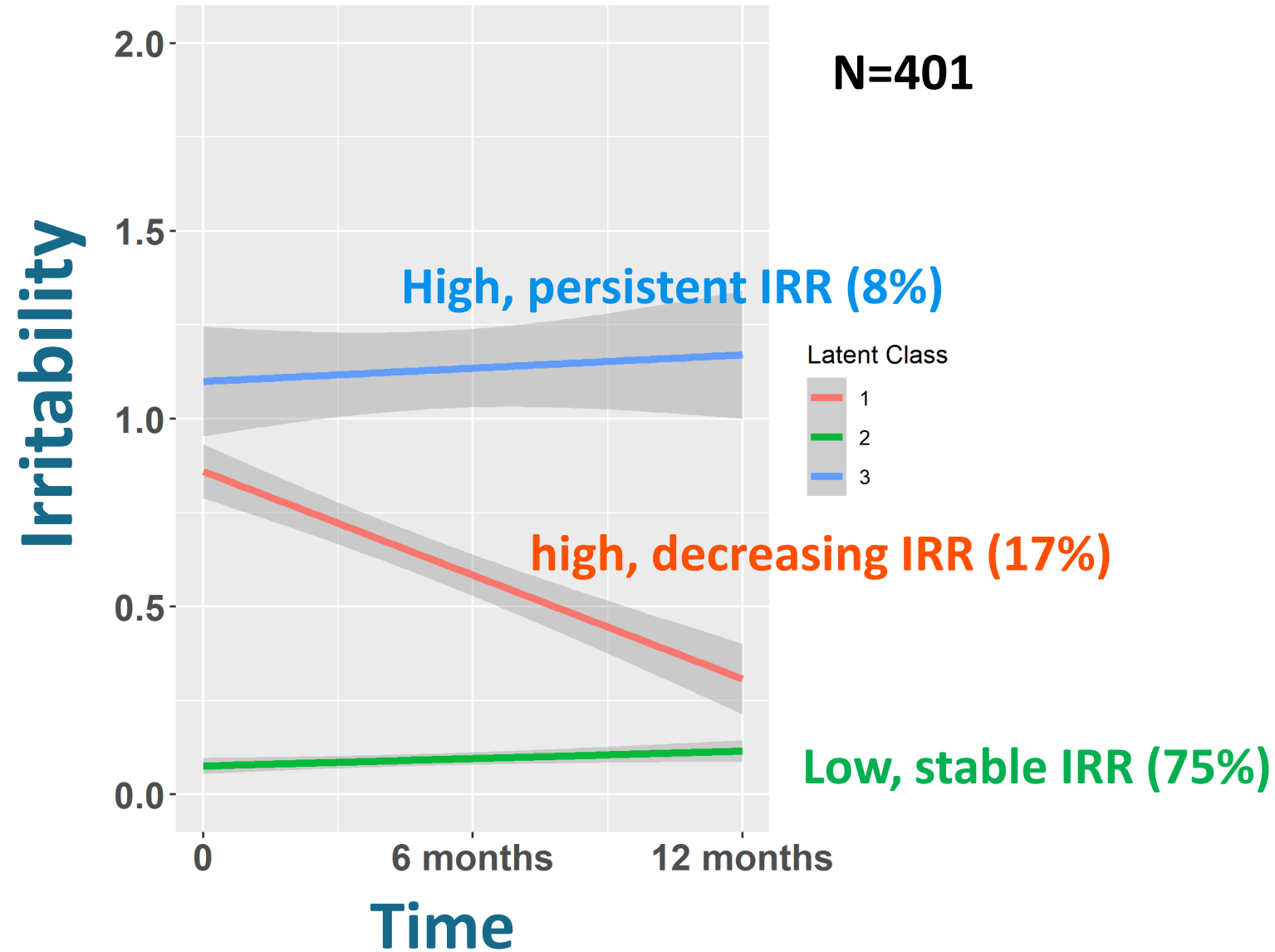
**Cingulate gyrus,
 $k = 888$, $p < .0001$,
 $xyz = (9, 19, 41)$**



R00: Prediction of Irritability Trajectories



Individual Subject
Brain Data During
Frustration

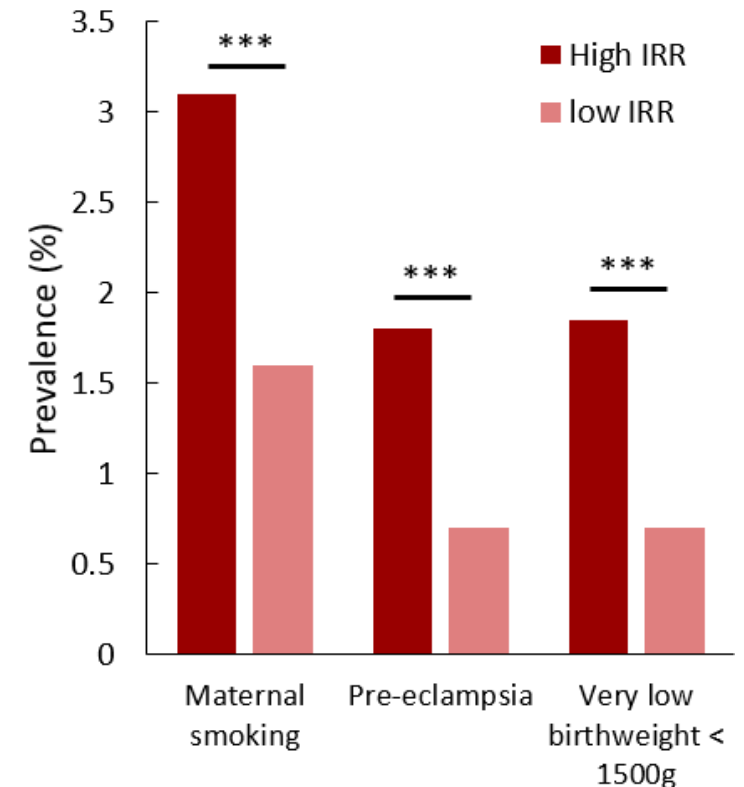


Environmental Influences of Childhood Irritability



N = 5124, ages = 7.7 to 14.6 years (*M*=11.2)

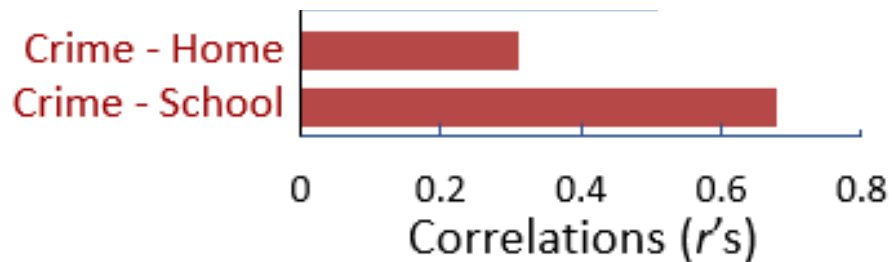
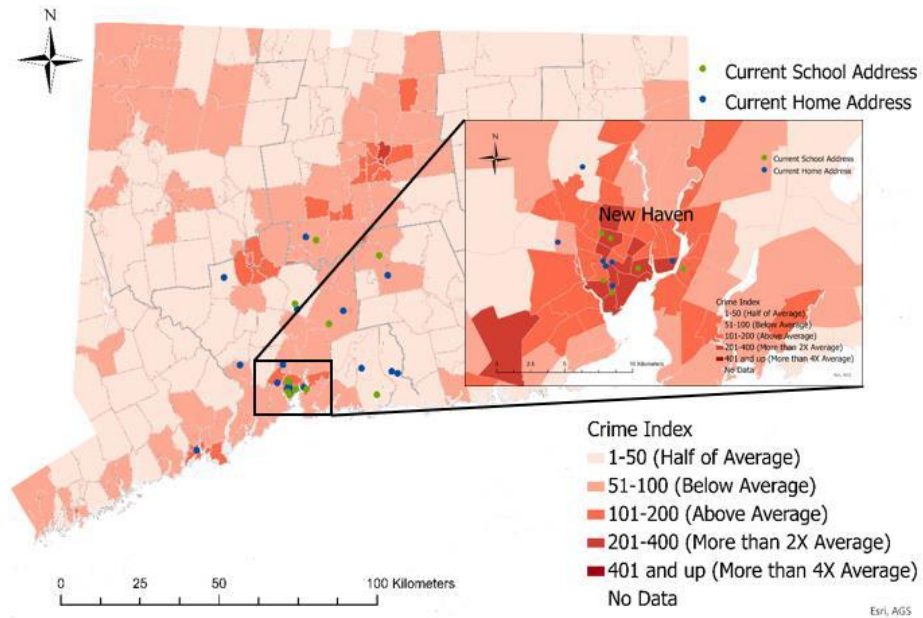
- **8 perinatal** characteristics—maternal smoking, caffeine consumption (> 1 cup a day), pre-eclampsia, high blood pressure, placenta abruption, tocolysis, vaginal bleeding, and edema during pregnancy
- **7 birth** characteristics—cesarean delivery, very preterm birth (gestation weeks ≤ 32 weeks), very low birthweight <1500 g, phototherapy for jaundice >3 days, nuchal cord, meconium aspiration syndrome (MAS), and non-singleton birth.



*Results controlled for child ADHD symptoms and maternal anxiety and depression

Environmental Influences of Childhood Irritability

Geospatial Modeling



Personal Environmental Exposure Assessment



Air sample

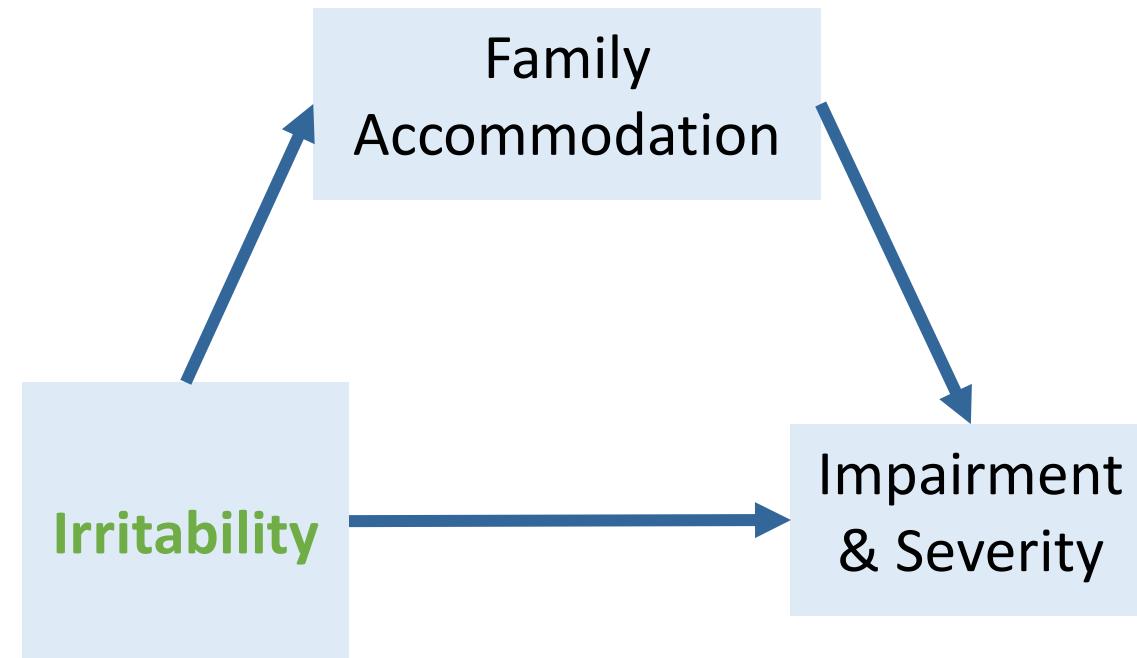


Household dust sample

Irritability & Anxiety: Family Accommodation

Family Accommodation Scale – Irritability (FASI)

- Have you **avoided doing things, going places, or being with people** because of your child's anger/irritability?
- Have you **done things for your child that would usually be their responsibility** because of their anger/irritability?
- Have you **changed your work/daily/personal schedule** because of your child's anger/irritability?
- Does engaging in these behaviors cause you **distress**?
- Has your **child become angry/irritable** when you have not done these things for them?



THANK YOU
for your
ATTENTION

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Is your child irritable or easily frustrated?



Brain Mechanisms of Childhood Irritability

If your child is **8 to 15 years of age**, and is **irritable or easily frustrated**, they can play an important role in research by volunteering for a *free* and *confidential* study. We are looking at irritability and frustration utilizing various procedures, e.g. fMRI (functional Magnetic Resonance Imaging), questionnaires, and interviews. The aims of the study are to identify brain activation and connectivity that predicts irritability and its changes over one year. **Compensation up to \$640.**

To view the website use the QR Code.

Using your phone's camera, hover over the QR code to go directly to the site.

To learn more or see if you are eligible to participate, call 203-646-3830 or email affectivelyouth@yale.edu.



HIC # 2000025557

Research Participants Needed



Brain Mechanisms of Childhood Irritability

If your child is **8 to 15 years of age**, with **little to no irritability** they can play an important role in research by volunteering for a *free* and *confidential* study. We are looking at irritability and frustration utilizing various procedures, e.g. fMRI (functional Magnetic Resonance Imaging), questionnaires, and interviews. The aims of the study are to identify brain activation and connectivity that predicts irritability and its changes over one year. **Compensation up to \$640.**

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