

# The influence of maternal anxiety and depression symptoms on fNIRS brain responses to emotional faces in 5- and 7-month-old infants

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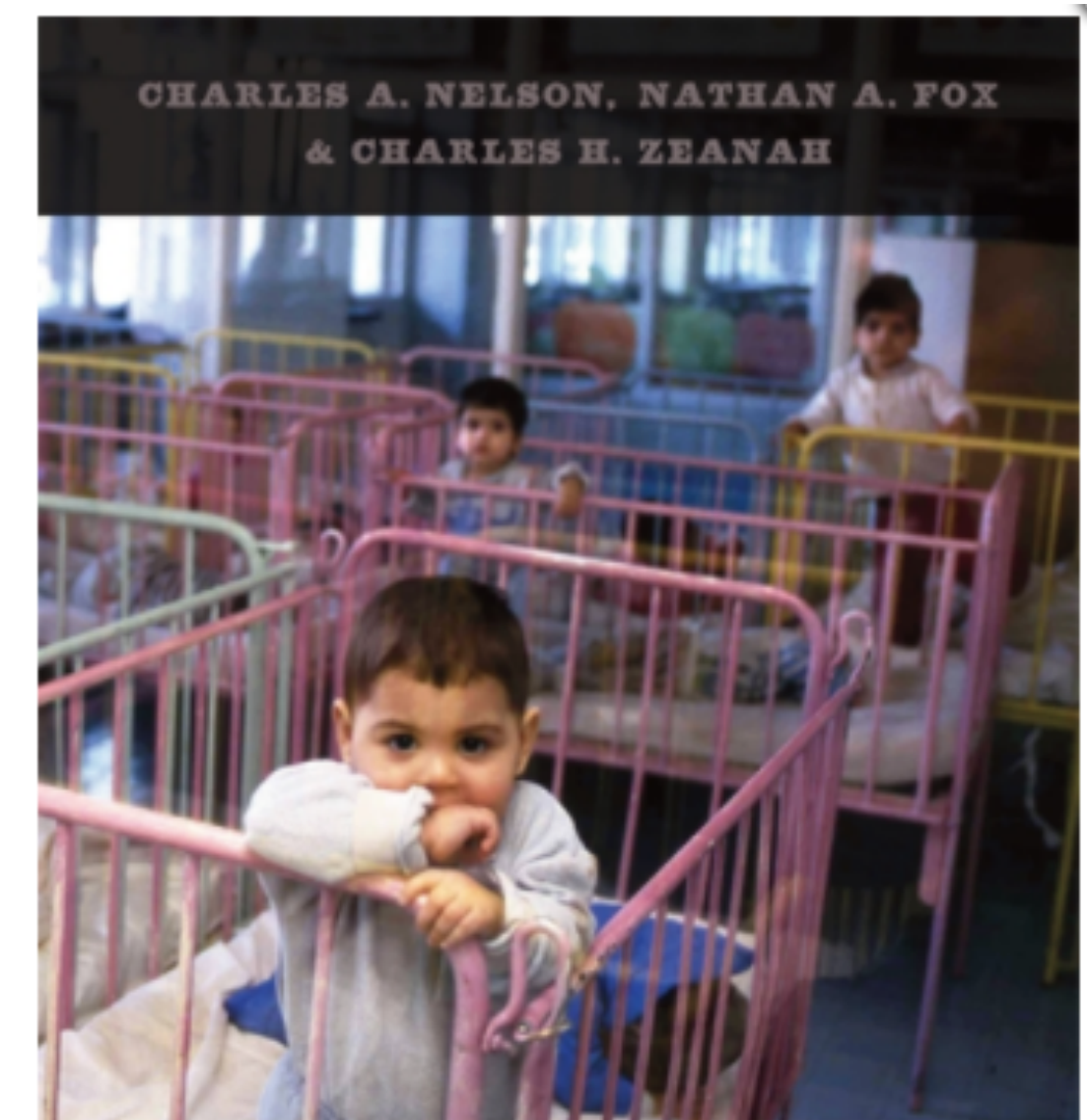
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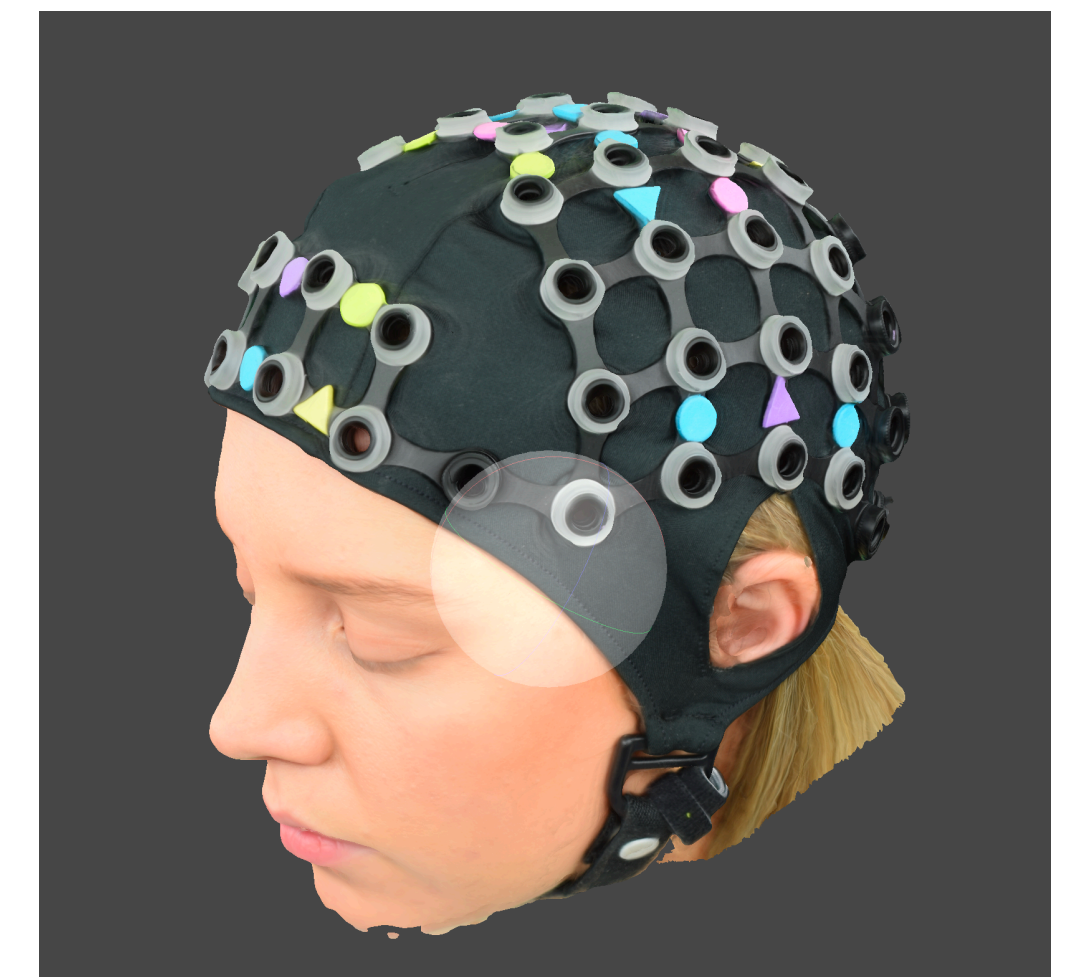
22nd May 2020 | Michaela Kent

# Background:

- Part of the “Center on the Developing Child” at Harvard University
- Brain development & neuroimaging = a perfect opportunity to use fNIRS?
- The future of fNIRS to study social neuroscience (including interactions with robots!)



**ROMANIA'S** Deprivation,  
**ABANDONED** Brain  
**CHILDREN** Development,  
and the  
Struggle  
for Recovery





# Introduction:

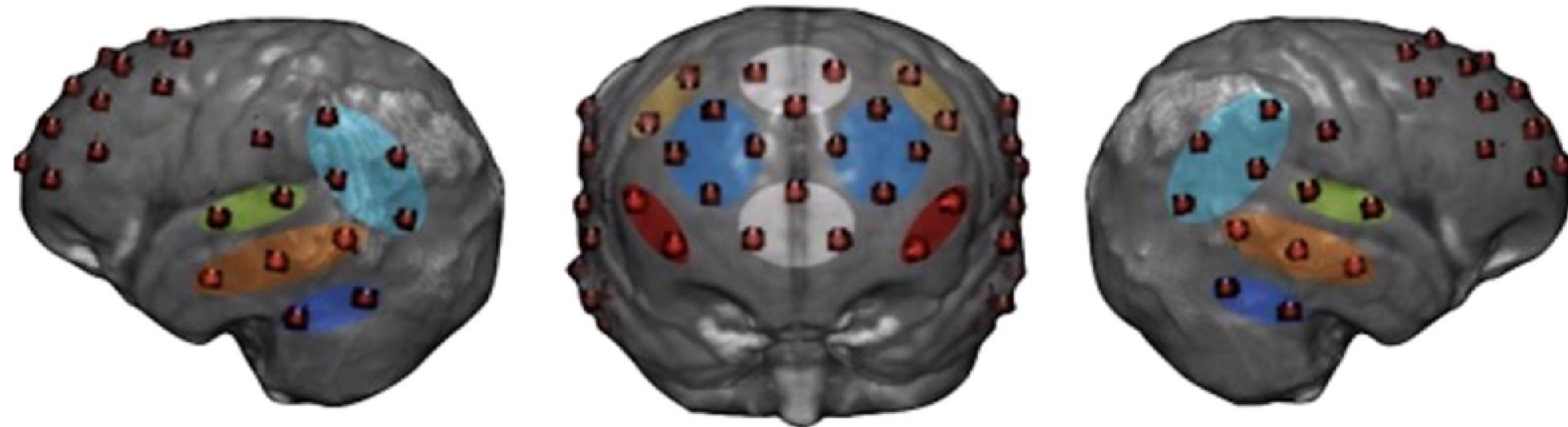


**The Atlantic, 2015**



# Methods:

- State-Trait Anxiety Inventory (STAI; Spielberger, 1989)
- Beck Depression Inventory (BDI; Beck, Steer, & Carbin, 1988)
- Functional near-infrared spectroscopy (fNIRS)



#### *Frontal regions:*

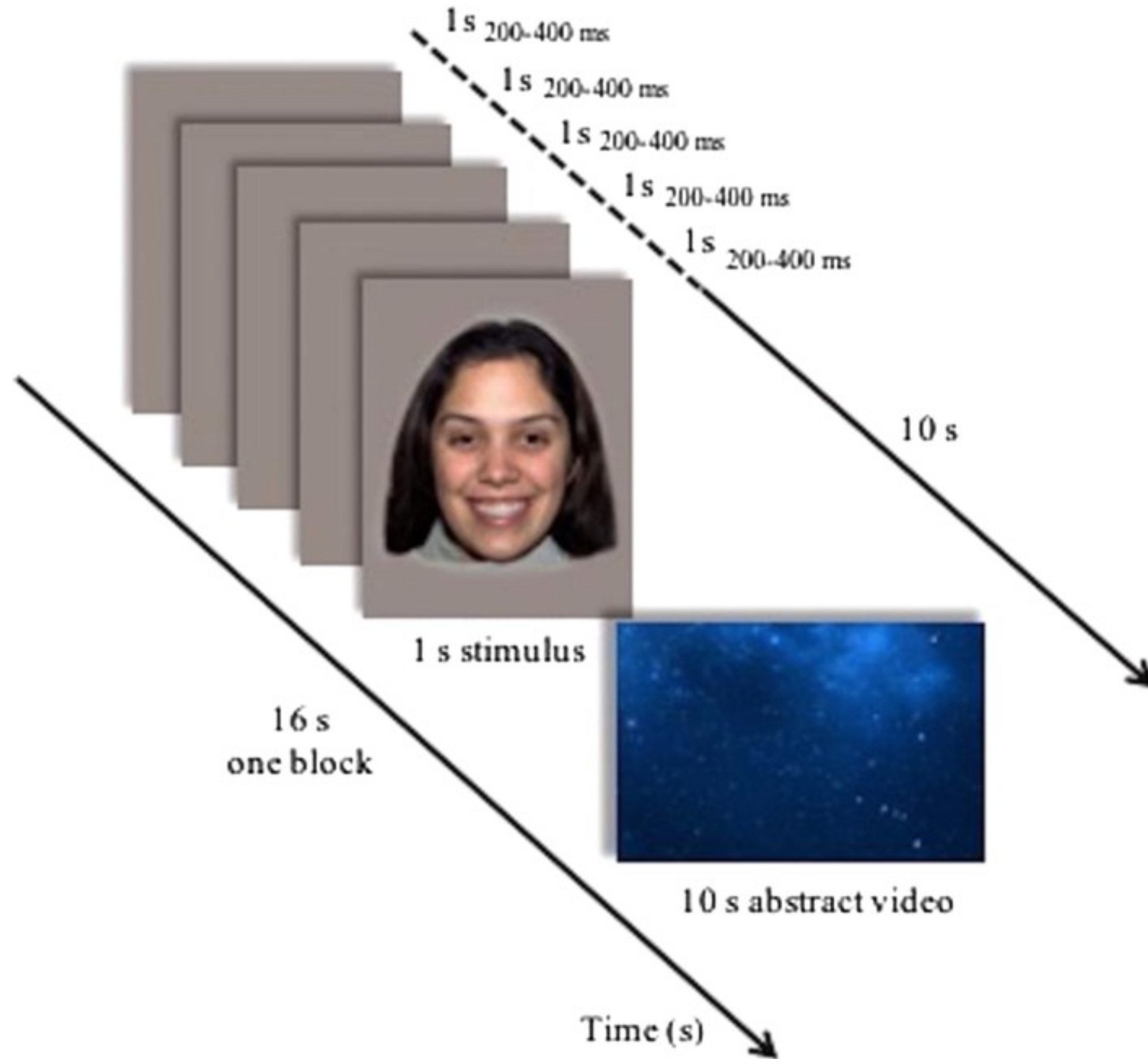
- Ventral/ dorsal superior frontal gyrus (vSFG/ dSFG)
- Middle frontal gyrus (MFG)
- Dorsal middle frontal gyrus (dMFG)
- Inferior frontal gyrus (IFG)

#### *Temporal and parietal regions:*

- Temporal-parietal junction area (TPJ)
- Superior temporal gyrus (STG)
- Middle temporal gyrus (MTG)
- Inferior temporal gyrus (ITG)

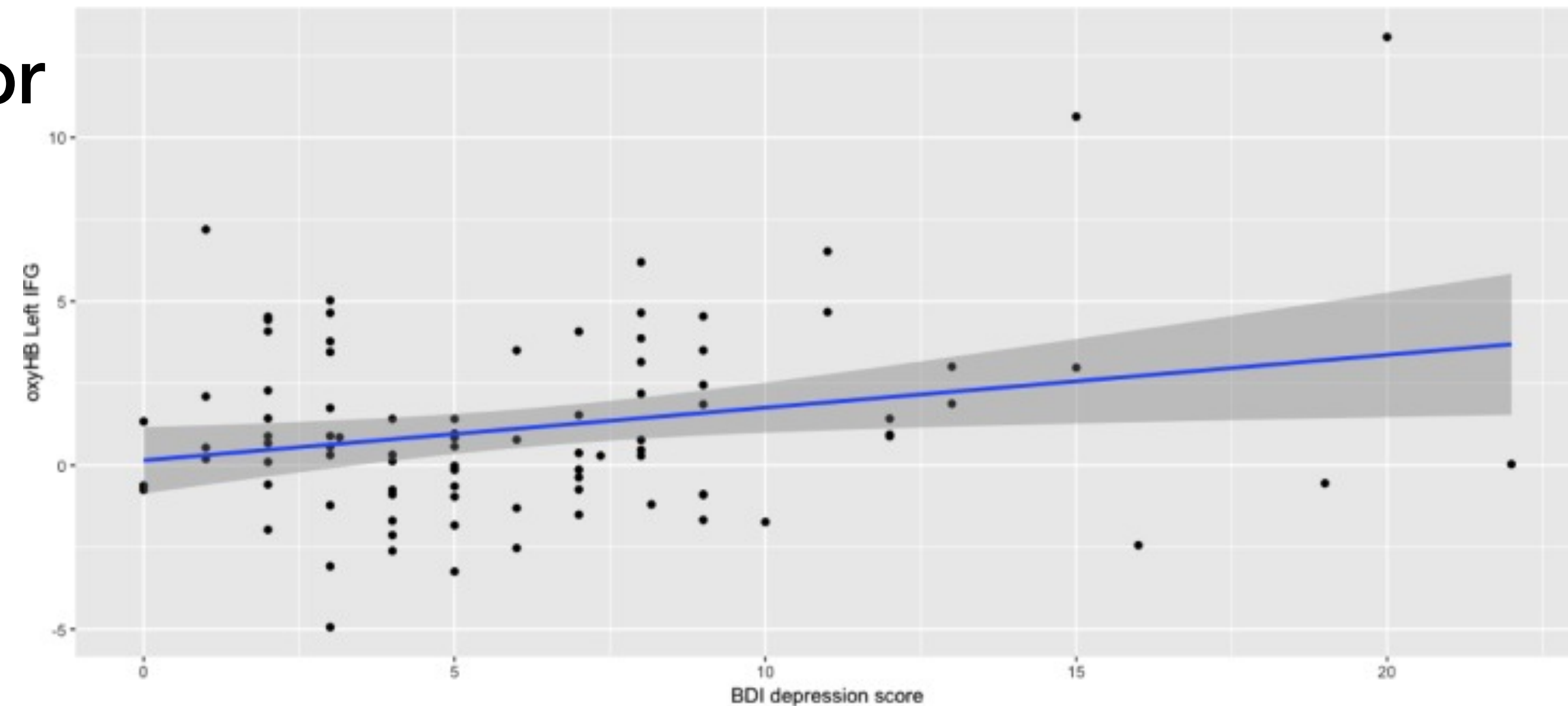


# Methods:



# Results:

- No evidence for frontal asymmetry associated with maternal depression or anxiety
- Significant main effect of maternal negative affect on response in left inferior frontal gyrus
- Positive association between maternal BDI scores and oxyHb responses

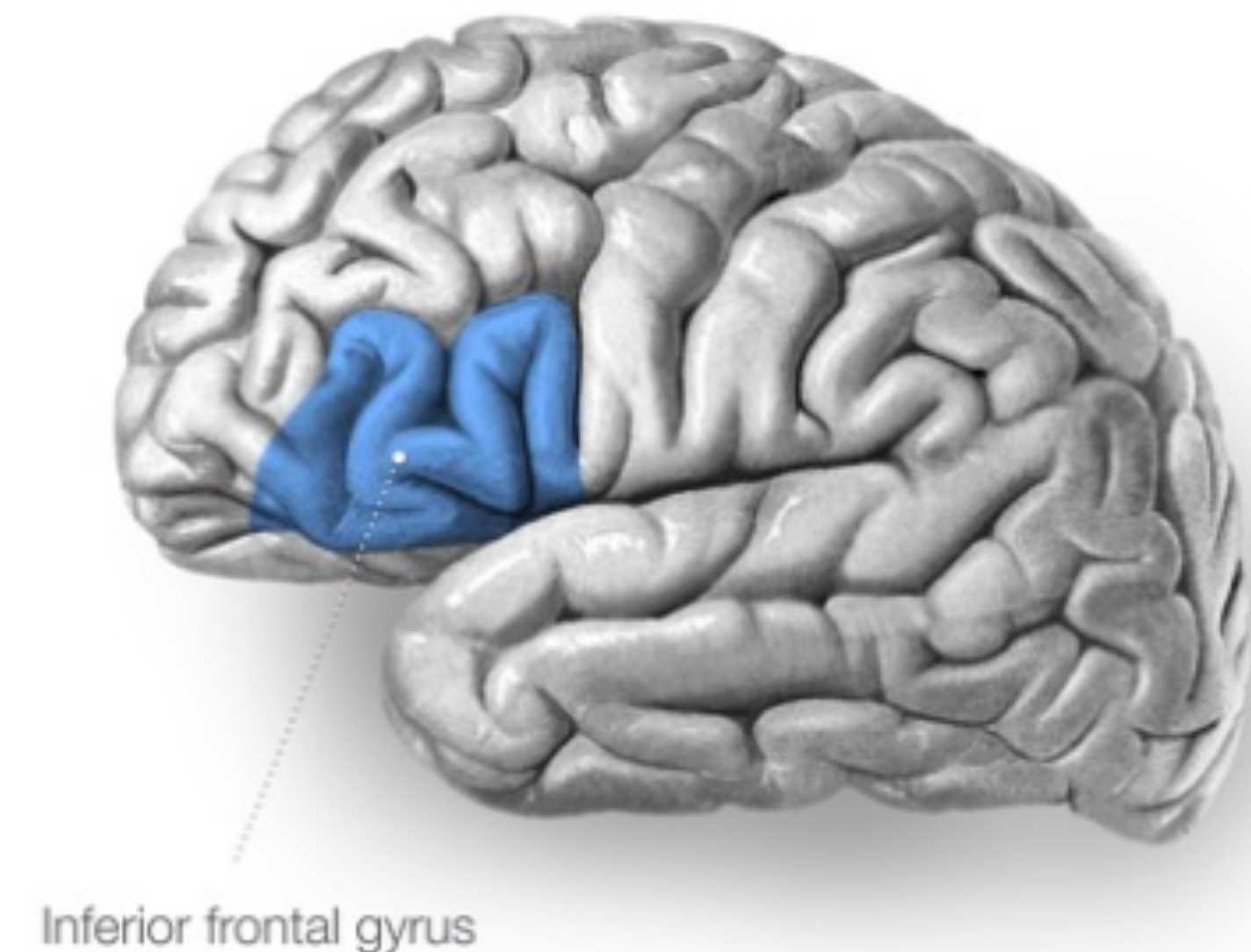




# Discussion:

**AIM:** Test associations between maternal depression and anxiety symptoms and neural activation patterns in infants

- Maternal depression may alter neural circuits in infants
- IFG = support of executive processes
  - making judgements
  - comparisons between stimuli



# Thoughts/ comments:

- **fNIRS – perfect opportunity to directly evaluate mother-infant interactions?**
- **Effects of economic status and cultural differences**
- **Assessment of depression and anxiety symptoms – are there better ways of assessing?**
- **Targeted interventions – what are the options?**
- **Benefits of longitudinal studies**



# Thank you!



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