

NEURAL PROCESSING OF OWN- AND OTHER-RACE FACES IN INFANCY

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Introduction

Other-race effect (ORE) = processing advantage for faces of one's own race

- Typically develops by 9M of age¹
- Impacted by exposure to racial/ethnic diversity²
- Measurable using behavioral and electrophysiological (EEG) methods

Infant face-sensitive ERP components include **N290** (recognition and encoding) and **Nc** (attention allocation, novelty, salience)³

- Prior work suggests enhanced N290 to own-race faces among White infants⁴
- Neural processing may be impacted by infants' racial identity & diversity exposure⁵

Objective

Examine N290 and Nc ERP responses to own- and other-race faces in a racially diverse sample of 9-month-olds.

Participants/Methods

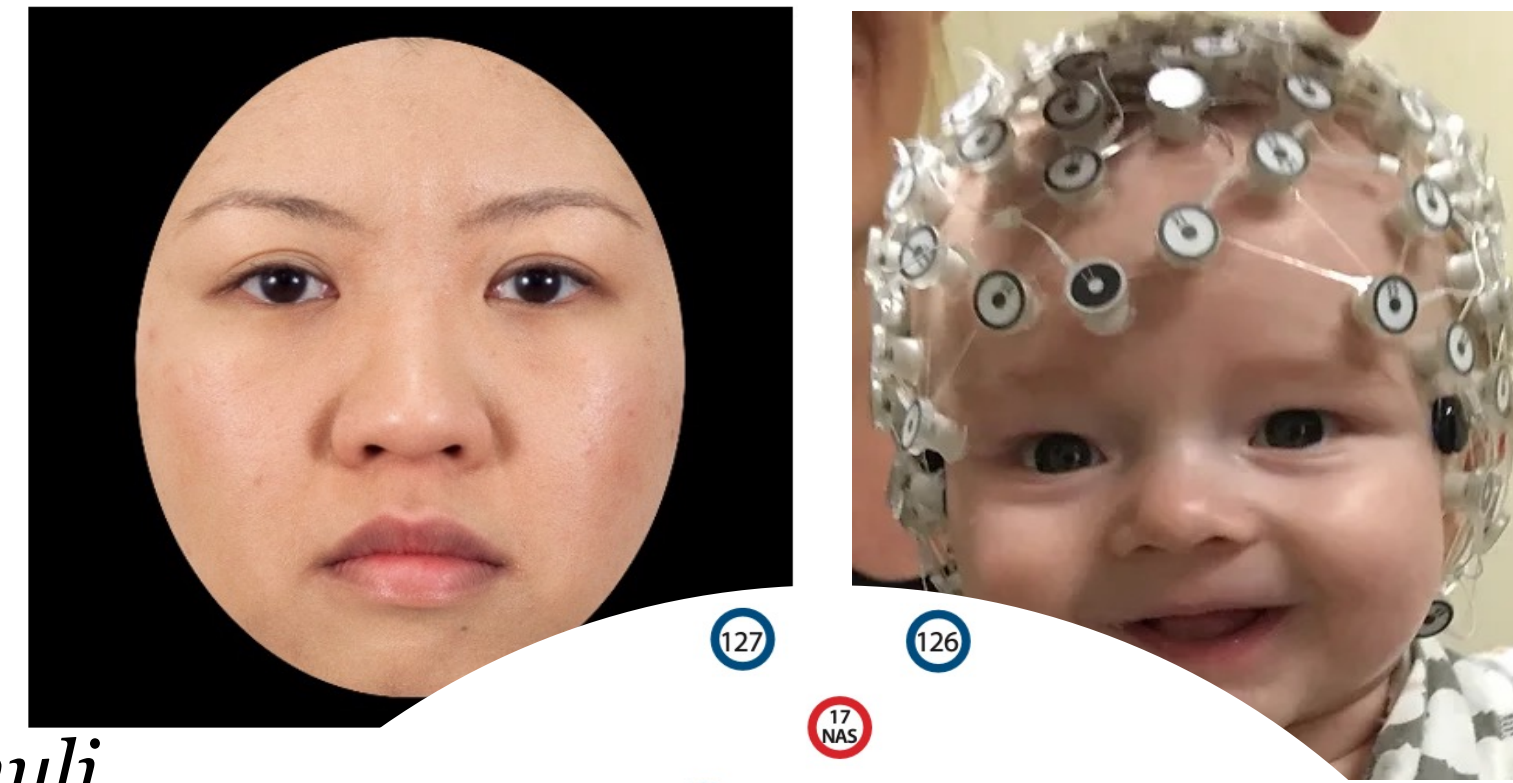
Caregiver-infant dyads ($N = 13$) completed:
 (1) Demographic & exposure to diversity forms
 (2) Randomized 20s **familiarization** to own- or other-race face

Demographic Statistics		N
Sex	Male	4
	Female	9
Racial/Ethnic Background	White	7
	Bi/multi racial	5
	Hispanic or Latinx	1

(3) **EEG protocol:** Randomized presentations of the **familiar face**, novel faces of the same race as the familiar (**familiar-race novel, FRN**), and novel faces of a different race (**different-race novel, DRN**)

Methods & Results

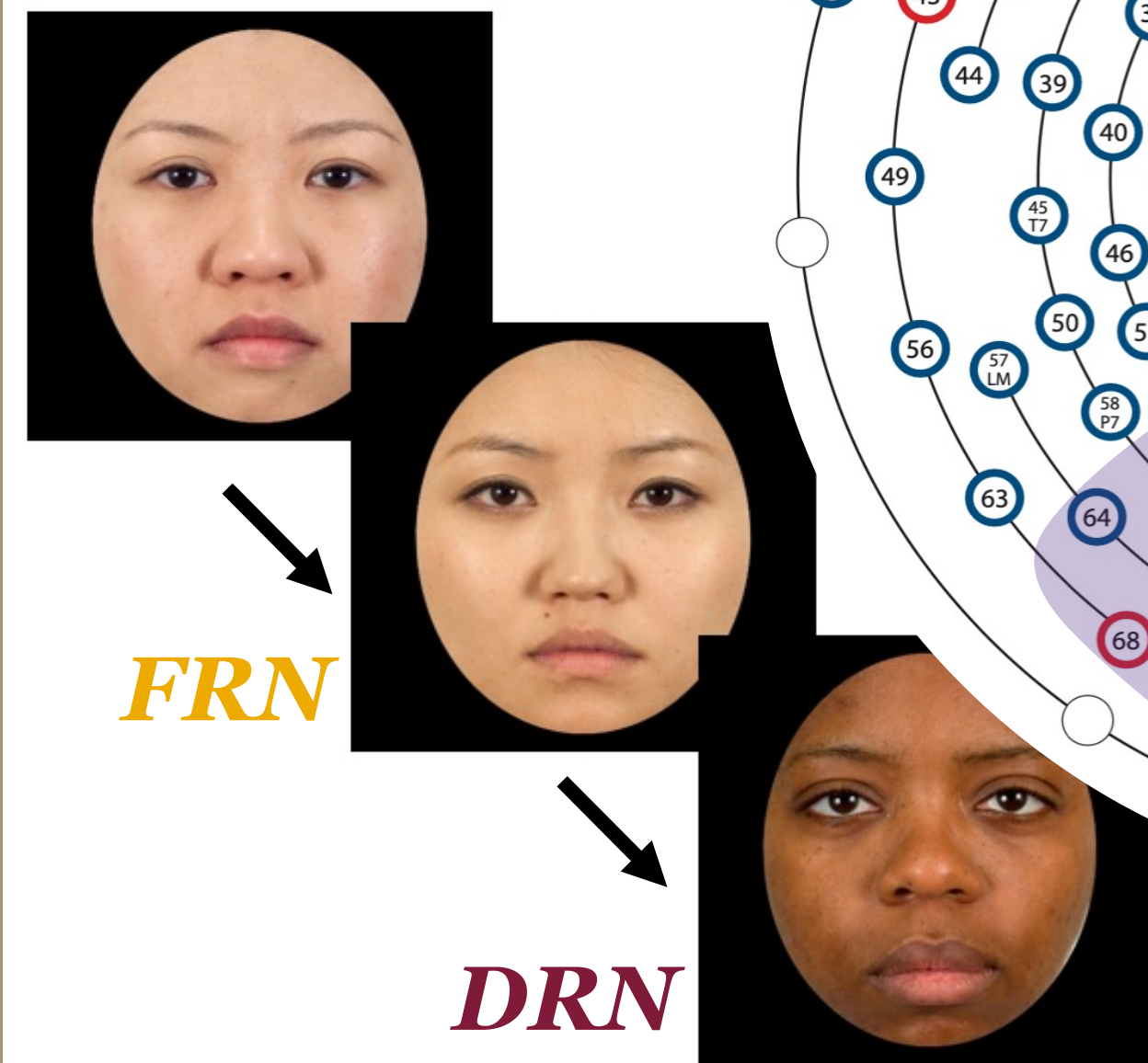
Familiarization (20s accumulated looking)



Magstim-EEG high-density 128-channel EEG system on infant participant.

ERP phase: randomized presentation of stimuli

familiar



Data collection continued until infants became fussy or inattentive (attractor stimuli used to regain attention).

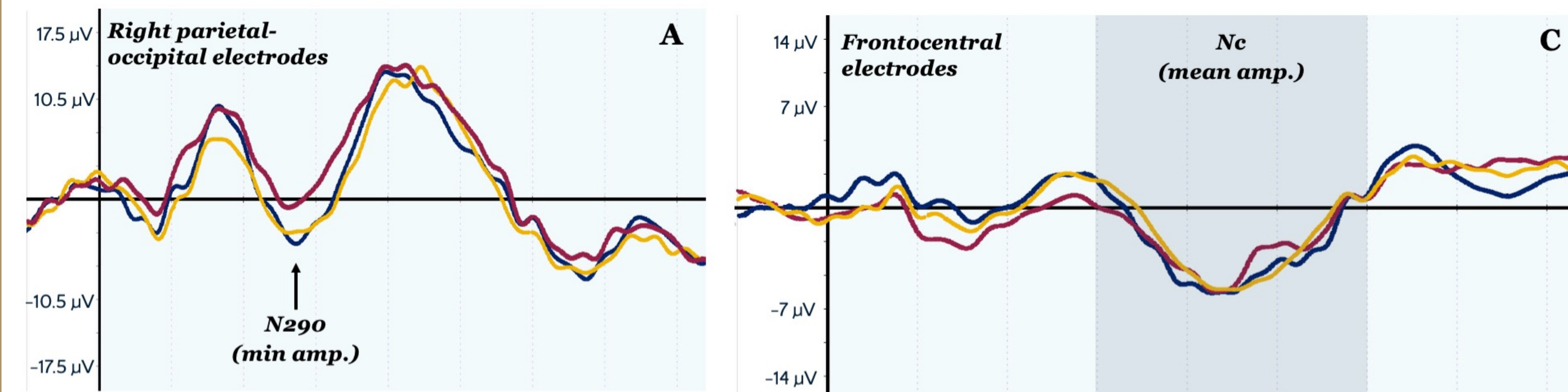
EEG Processing

- .10-30 Hz bandpass filter; segmented 100ms pre – 1000 ms post-onset
- Segments excluded for non-looking or >15% channels including excessive artifacts
- Minimum 10 trials per condition

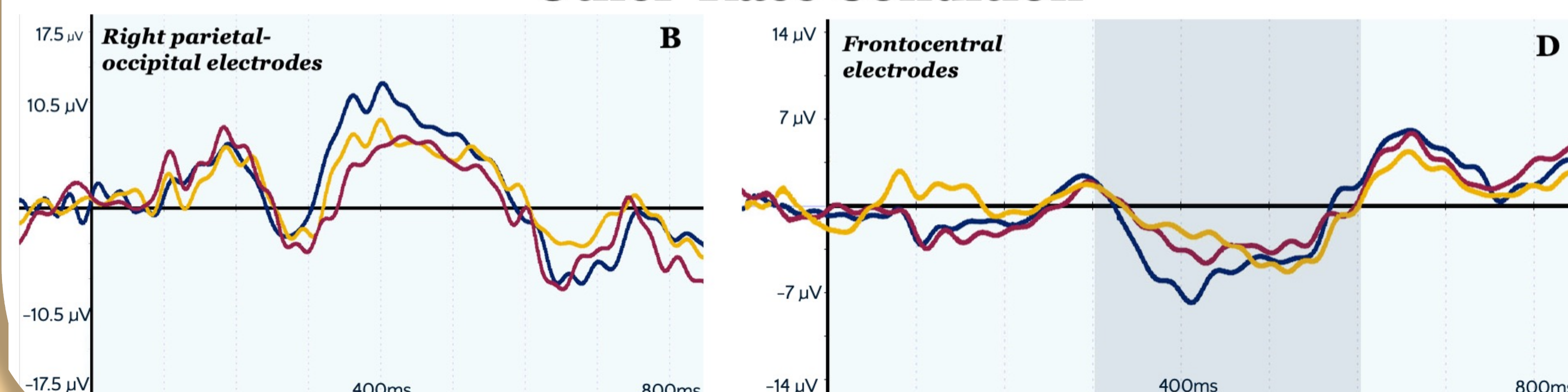
ERP Segmentation

- N290 amplitude & latency measured over **parietal occipital regions**; 250-350 ms post-onset
- Nc amplitude measured over **fronto-central regions**; 350-750 ms post onset

Own-Race Condition



Other-Race Condition



■ Familiar ■ FRN ■ DRN

Results & Conclusions

Own-race Condition

- No significant results for N290 or NC, but qualitative trending toward a greater **N290 amplitude** for familiar & FRN faces (figures A & C)

Other-race Condition

- **N290 amplitude** impacted by stimulus type in right parietal, $F(2,8) = 4.89, p = .041$, and right parietal-occipital clusters, $F(2,8) = 4.66, p = .045$ (n.s. follow-up comparisons; figure B)
- Shorter **N290 latency** for familiar & FRN compared to DRN in left parietal cluster, $F(2,8) = 14.98, p = .002$
- Greater **NC amplitude** to familiar & DRN compared to FRN, $F(2,8) = 20.08, p < .001$ (figure D)

Discussion

Infants show unique patterns of neural processing of own- and other-race faces.

- Infants familiarized to other-race faces differentiated among stimulus types
- Null own-race findings may indicate a longer developmental window of neural tuning to faces in this diverse group of infants (~30% multiracial)
- Future analyses will consider participant race and exposure to diversity as contributing factors in a larger sample of infants (data collection is ongoing)
- Broader implications for understanding early neural mechanisms underlying social-cognitive bias

Acknowledgements

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References

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