Impact of Age and Race on Face Recognition in 9- to 12-Month-Olds

Cidnee M. Hall, Aslı Bursalıoğlu, Nhi Duong, Owen Caldwell, Emily Pawelko, Marcus Piattoni, and Maggie W. Guy
Loyola University Chicago

BACKGROUND

- Perceptual narrowing leads to processing biases for perceptual categories infants are exposed to regularly
- By 9 months of age, infants show improved recognition of:
  - Own-race compared with other-race faces (known as the Other Race Effect, ORE)[2]
  - Adult faces compared with child faces[3]
- ORE commonly observed in racially homogenous societies among racial majority members
- Current study examines the potential interactive effects of perceptual categories on face recognition ability after perceptual narrowing has occurred, by evaluating the impact of race and age simultaneously on face recognition in 9- to 12-month-old infants.

HYPOTHESES

- **Infants will only demonstrate recognition of own-race adult faces evidenced through novelty preference in VPC trials**
  - Adult condition will demonstrate superior recognition of own-race faces compared to other-race faces
  - Child condition will show null preferences regardless of race

METHOD

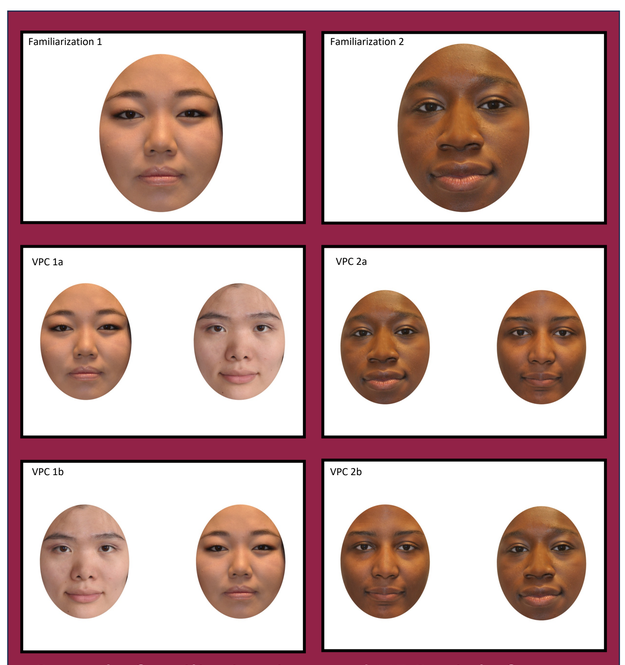
Participants:

- 81 9- to 12-month-olds (M_{age} = 313 days; SD = 32) from the U.S.
- Completed online via Children Helping Science[6]
- Environmental exposure to stimulus categories:
  - Parent reported number of siblings, exposure to diversity, US state
  - State-level diversity index (DI) from 2020 US Census

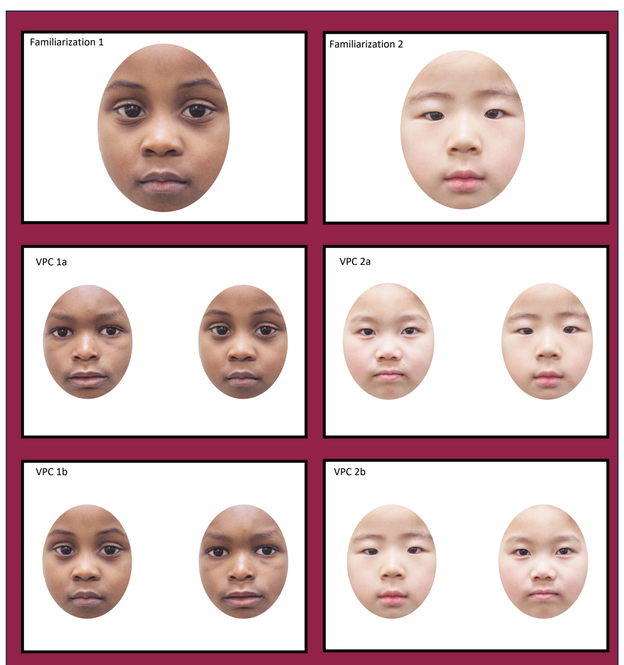
		n	%
Gender	Female	39	48.1
Race	White	50	61.7
	Black	3	3.7
	Asian	5	6.2
	Bi- or Multiracial (Total)	22	27.1
	Biracial (White and Black)	7	8.6
	Biracial (White and Asian)	11	13.6
	Prefer not to answer	1	1.2
Ethnicity	Hispanic/Latine	10	12.3
	Not Hispanic/Latine	62	76.5
	Prefer not to answer	9	11.1

Procedure:

- Participants randomly assigned to view either adult (n = 50) or child (n = 31) face stimuli in own- and other-race trials
- Familiarization and visual paired comparison trials (VPCs) used to measure recognition
  - Other-race familiarization (30 sec), side-by-side familiar and novel other-race faces (10 sec), repeated for own-race faces
  - Order of own- and other-race presentations randomized
- Looking behavior coded by trained raters who showed high reliability (ICC = .981, 95% CI .972 to .988)



Sample familiarization and VPC trials for adult condition



Sample familiarization and VPC trials for child condition

Data Analytic Plan

- One-sample t-tests examined overall differences in looking preferences to novel and familiar faces during VPC trials
  - Further grouped by condition and majority race identity
- Bivariate correlations to explore relationships among demographic variables and looking behavior during VPCs

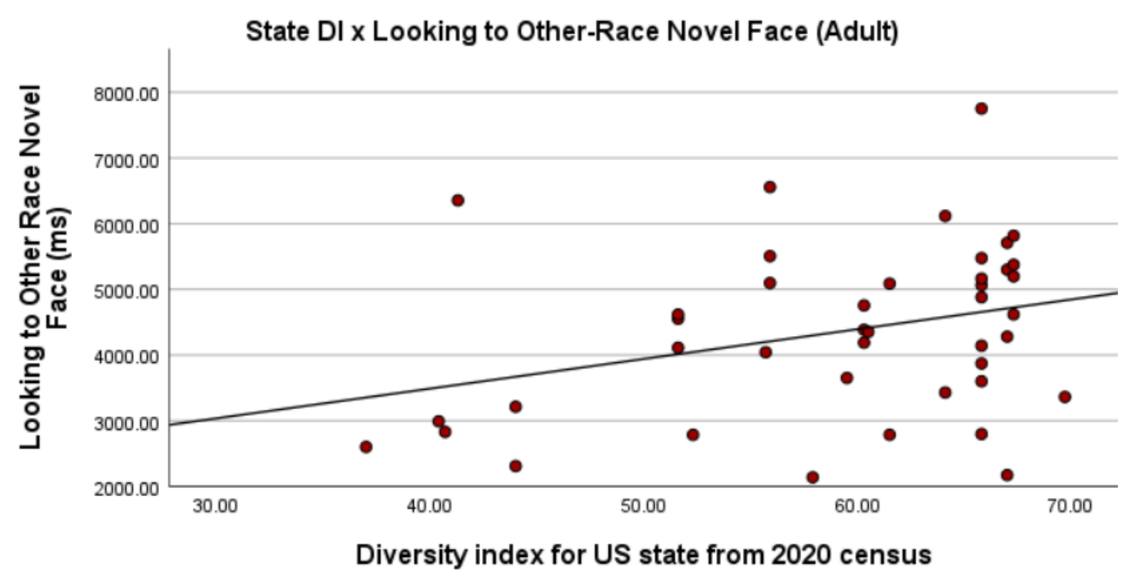
RESULTS

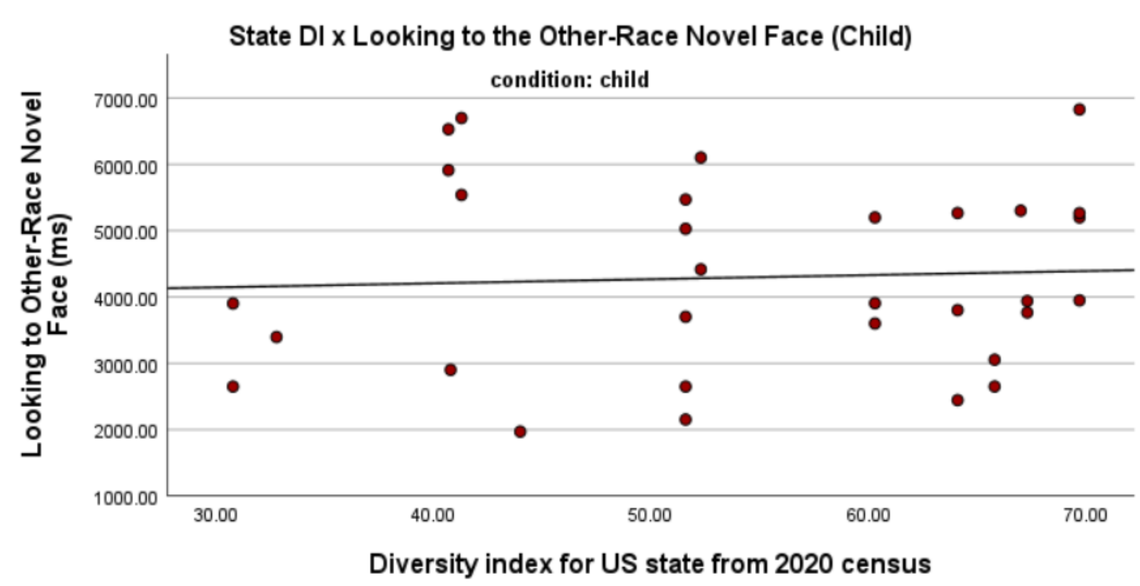
Novelty preferences during VPCs

- **Overall: no significant novelty preference during own- (p = .331) or other- (p = .383) race VPC trials**
  - Results did not differ by participant racial or ethnic identity or by face stimuli (adult or child) condition

Correlations with looking during VPCs

- Adult condition: **DI significantly positively correlated with looking to the novel other race face** (r = .314, p = .043) and to the familiar own race face (r = .315, p = .045)
  - Correlation stronger among white participants (r = .581, p <.001), non-sig among non-white participants
- Child condition: DI not correlated with looking during VPC trials regardless of race of the participant





DISCUSSION

- Participants did not exhibit recognition regardless of age or race of face stimuli
  - Contradicts prior literature on perceptual narrowing
- Recognition biases may be impacted by early exposure to racial diversity[1] and siblings[4,5]
- US as a unique context for ORE research
  - Evidence of state-level diversity impacting attention to other-race adult faces, especially among White infants
  - Importance of early, rich exposure to racial diversity for majority race infants to mitigate emerging biases
- Data collection is ongoing, future analyses will continue to explore role of participant race, exposure to racial diversity, neighborhood context, and siblings in shaping recognition biases for age and race of face stimuli

Interested in our research? Scan the QR code to learn more about our work!

References

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