The Impact of Community Integration on the Other-Race Effect in Infancy

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Background

The other-race effect (ORE) is a perceptual bias advantaging processing and recognition of faces of one's own race over faces of another race. The ORE typically develops by 9-months of age (Kelly et al, 2007). Environmental exposure to other races has an impact on the development and strength of the ORE, where infants belonging to a minority racial group in their community may not develop a perceptual bias for own-race faces (e.g., Bar-Haim et al., 2006). We investigated the impact of community diversity on the strength of the ORE in 9- to 12-month-olds from across the United States.

Hypotheses

Infants exposed to more racial and ethnic diversity through their community, as measured by zip-code demographics, were expected to exhibit recognition for own- and other-race faces, while infants with less exposure to diversity were expected to exhibit recognition only for own-race faces.

Method

Participants: 69 9- to 12-month-olds (*M* = 322 days) from the U.S. participated asynchronously online via Lookit (Scott & Schulz, 2017)

- Gender: 32 f, 37 m
- Race: 47 White, 10 belonging to two or more races, 6 Asian, 2 Black, 2 Hispanic/Latinx, 2 Middle Eastern or North African

Procedure: Parents self-reported infant demographic information, including zip-code. Participants completed a familiarization trial (30 s) and visual paired comparison (VPC) trials (10 s) with sets of own- and other-race face stimuli from the RADIATE stimulus set (Conley, 2018).

Data processing:

Looking times were coded frame-by-frame using Datavyu by trained raters who demonstrated high inter-rater reliability (Pearson's r > .97).

Sample familiarization and VPC stimuli

References

Bar-Haim et al. (2006). Nature and Nurture in Own-Race Face Processing. *Psychol. Sci.* 17 (2), 159-163.

Conley, M. I., Dellarco, D. V., Rubien-Thomas, E., Cohen, A. O., Cervera, A., Tottenham, N., & Casey, B. J. (2018). The racially diverse affective expression (RADIATE) face stimulus set. *Psychiatry res., 270*, 1059-1067.

Kelly, D. J., Quinn, P. C., Slater, A. M., Lee, K., Ge, L., Pascalis, O. (2007). The Other-Race Effect Develops During Infancy. *Association for Psychol. Sci.* 18(12), 1084-1089.

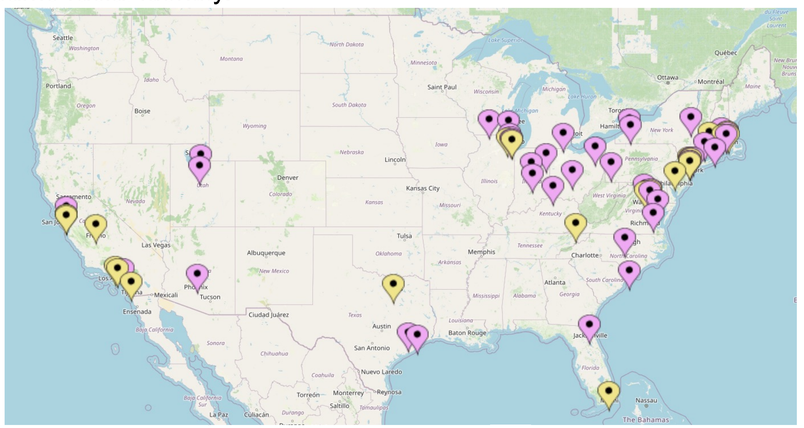
U.S. Census Bureau (2022). American Community Survey Data. Retrieved from https://www.census.gov/programs-surveys/acs.

Measure of community diversity:

The Hirschman-Herfindahl index (IHH) was calculated using American Community Survey data (U.S. Census Bureau, 2022) to obtain the probability two random individuals in the same zip-code have the same racial identity.

$$IHH = \sum_{i=1}^{n} s_i^2$$

Where s_i is the percentage share of a racial or ethnic group i. Higher IHH = higher community diversity.



Participant zip-codes, = demographic minority = demographic majority

Statistical Analyses:

- Overall differences in looking to familiar and novel faces during VPC trials were tested with paired samples t-tests
- Effects of demographic majority status tested with one-way ANOVAs
- Impact of community diversity tested with linear regression

Results

Participants **looked significantly longer to novel own-race faces** (*M* = 4.58 s) **than familiar own-race faces** (*M* = 3.82 s), *t*(68) = -2.890, *p* = .003. There were **no significant differences in looking to other-race faces,** *t*(68) = -1.226, *p* = .112.

There was a significant difference in proportion of looking to novel own-race faces between community majority and minority group participants, F(1, 67) = 5.832, *p* = .018, but not in proportion of looking to novel other-race faces, F(1, 64) = .083, *p* = .775. **Participants who held a racial or ethnic minority identity had significantly lower proportions of looking to novel own-race faces** (*M* = .487) than participants who held a racial or ethnic majority identity (*M* = .529) in their community.

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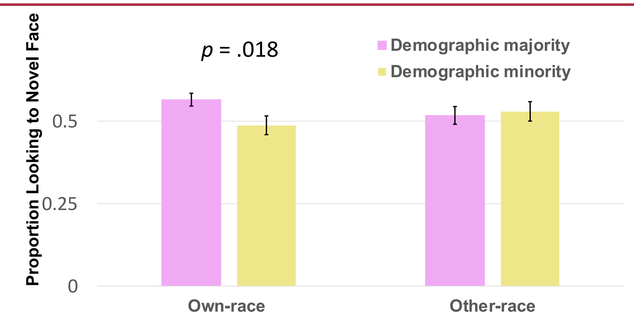
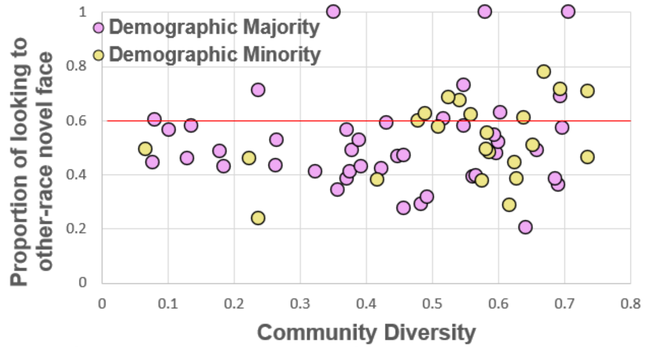


Proportion of looking to own- and other-race novel faces among demographic majority and minority members

Community diversity did not significantly predict proportion of looking to own-race novel faces, B = .042, SE = .091, *t*(64) = .455, *p* = .651, or proportion of looking to other-race novel faces, B = .131, SE = .109, *t*(64) = 1.200, *p* = .235.



Proportion of looking to other-race novel face by community diversity and community majority/minority status

Discussion

This study **replicated prior results demonstrating the ORE** in 9- to 12-month-olds. The ORE was **driven by infants belonging to the community majority racial group**. Infants belonging to a community minority racial group did not exhibit a novelty preference for either own- or other-race faces. Individuals belonging to **minority racial groups in their community may have greater exposure to racial outgroups, mitigating perceptual biases for own-race faces.**

Surprisingly, **community diversity did not predict the strength of the ORE**. Qualitative differences observed may highlight the need for more nuanced measures or recruitment of a larger sample. Future research may benefit from greater focus on the quality and quantity of exposure to racial diversity.