

Own-Age Bias in Face-Name Associations: Evidence from Visual Attention and Memory in Younger and Older Adults

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Introduction

Face-name associative (FNA) memory

- Ability to successfully remember face-name pairs is an important social skill *Naveh-Benjamin et al., 2004*
- Declines with age, possibly due to age-related deficits in associative memory *Naveh-Benjamin et al., 2009*

Own-age bias (OAB)

- Better face recognition for own- than other-age faces in younger & older adults *Rhodes & Anastasi, 2012*
- Increased attention to and more favorable evaluation of one's own-age group compared to other age groups *Ebner, 2008; Ebner & Johnson, 2009; Hackel et al., 2013*
- Longer and more frequent looking at encoding of own-age compared to other-age faces *He et al., 2011; Slessor et al., 2010; Firestone et al., 2007*

OAB not yet examined for name memory and visual attention during encoding and testing

Research Aims

AIM 1. To determine the extent to which younger (YA) and older (OA) adults show an OAB in a face-name associative memory paradigm for **(1A)** name memory overall and **(1B)** separately for name recognition and name recall.

AIM 2. To determine the extent to which YA and OA show an OAB in visual attention during **(2A)** encoding of face-name pairs, **(2B)** name recognition testing, and **(2C)** name recall testing.

Methods

Participants

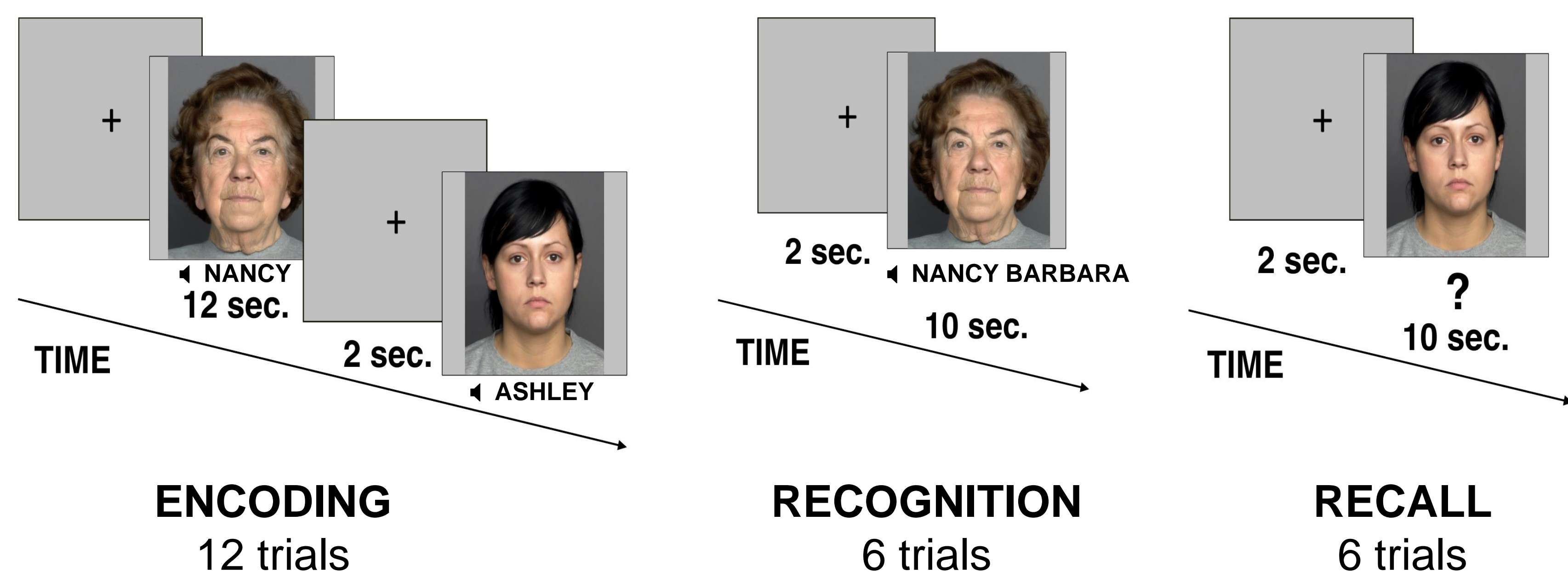
- Healthy, well-educated, community-dwelling, Caucasian, English-speaking
- 90 YA ($M = 19.2$, $SD = 1.31$, 71% female) and 84 OA ($M = 73.4$, $SD = 3.48$, 70% female)

FNA task

- High-frequency first names paired with neutrally-expressive faces *Ebner et al., 2010, SSA, 2012*
- Presented in four same gender, different age (younger, older) blocks of twelve pairs
- Name recognition and name recall tested for half of the pairs in each block
- Presentation order counterbalanced for testing type, gender, face age, and names

Visual Attention

- Recorded using Eyelink 1000 eye-tracking camera during encoding & testing
- Fixation count.** Per face mean number fixations (focused gaze at 1° visual angle for ≥ 100 ms)
- Looking time.** Time spent fixating per face (ms)
- Normalized pupil size.** Pupil size adjusted for individual variance $\frac{(Pupil_{Mean} - Pupil_{Min})}{(Pupil_{Max} - Pupil_{Min})} \times 100$



Design

2 x 2 Mixed-Model Design

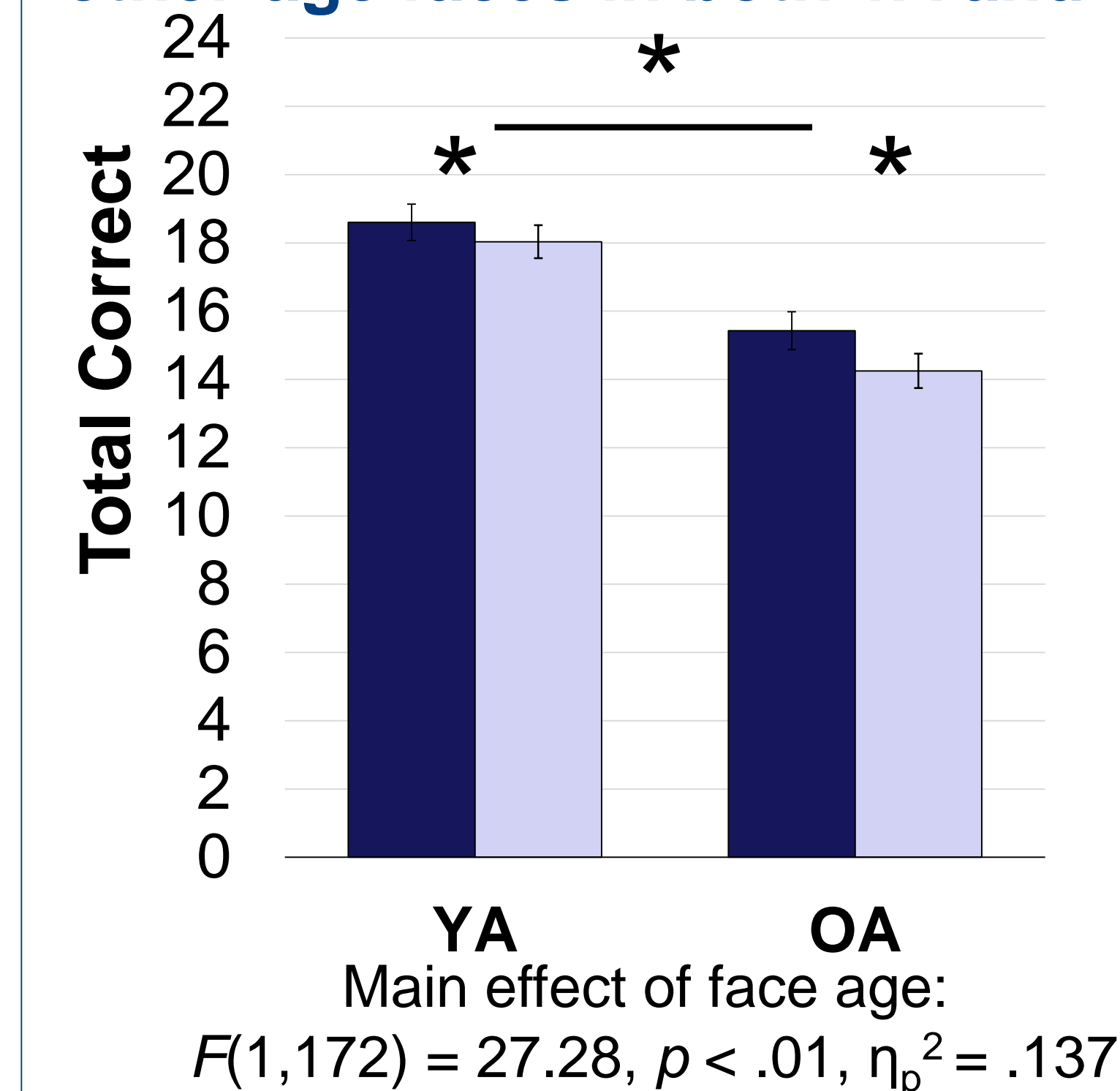
- Repeated measures ANOVAs
- 2 ages (between: YA, OA)
- 2 face ages (within: own, other)

Figure Information

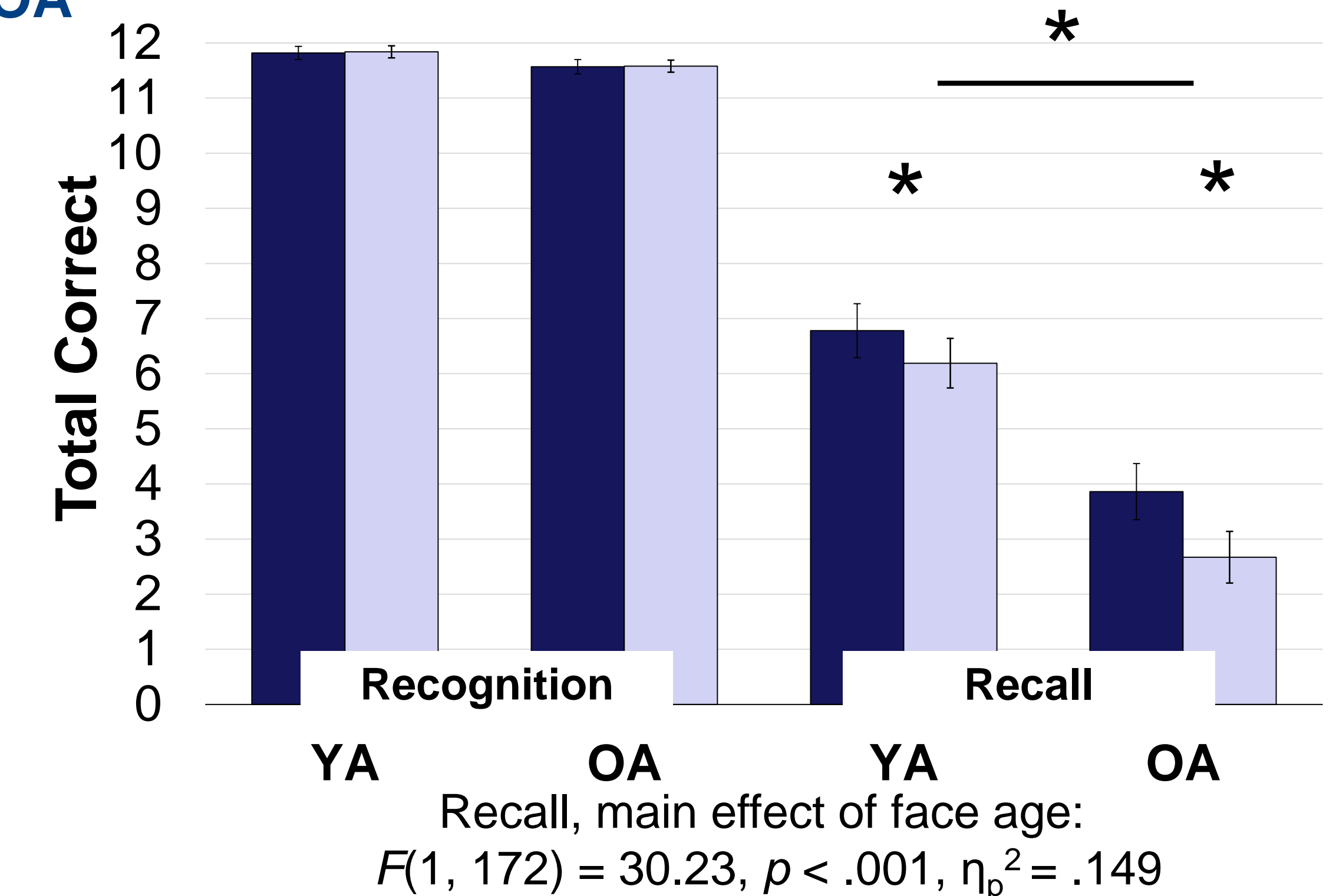
- Legend**
Own-Age Faces (dark blue bar), Other-Age Faces (light blue bar)
- Error bars = 95% confidence intervals
 - * $p < .05$

Aim 1 Results

1A. Better memory for own- versus other-age faces in both YA and OA



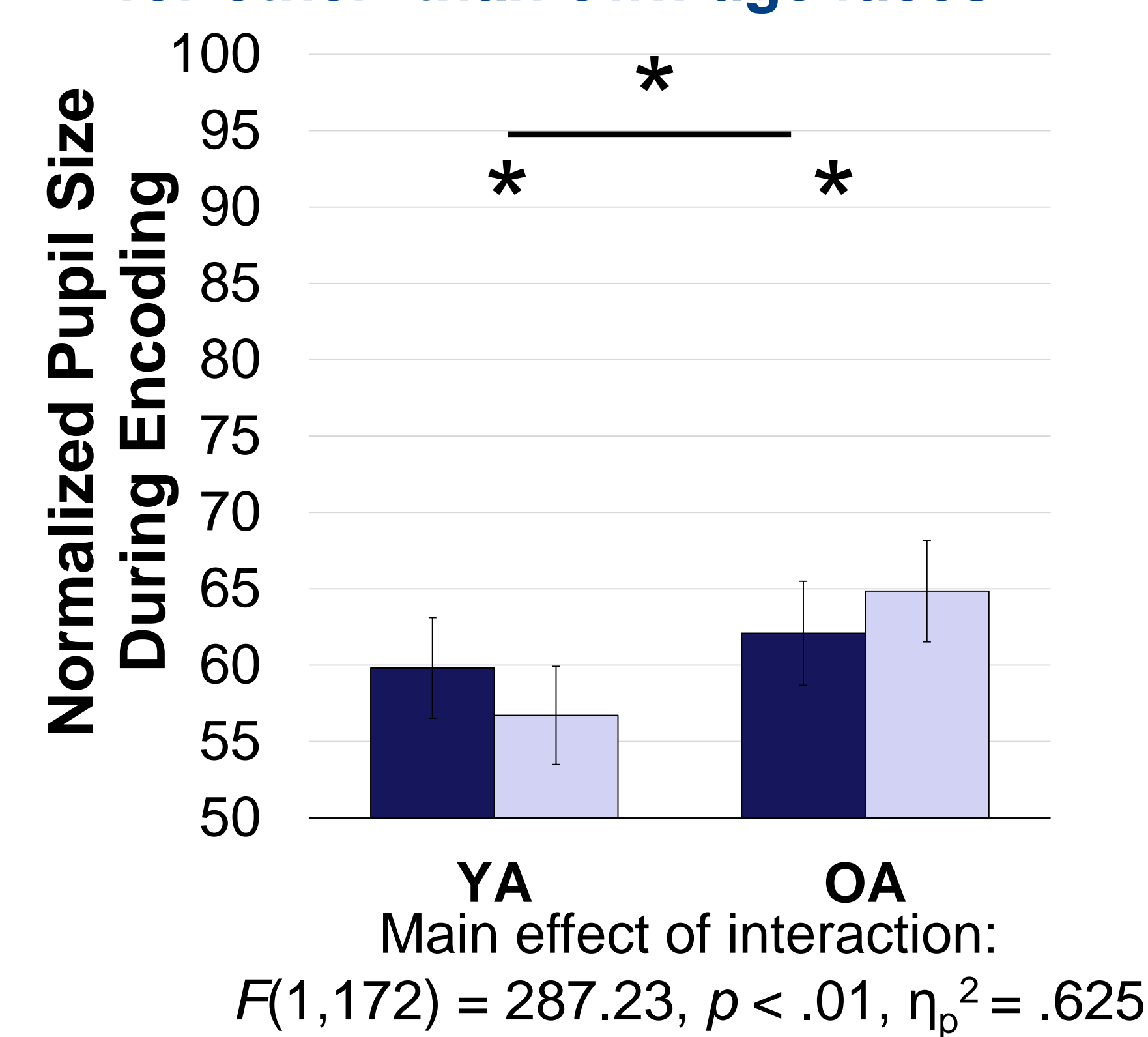
1B. OAB for name recall, but not recognition



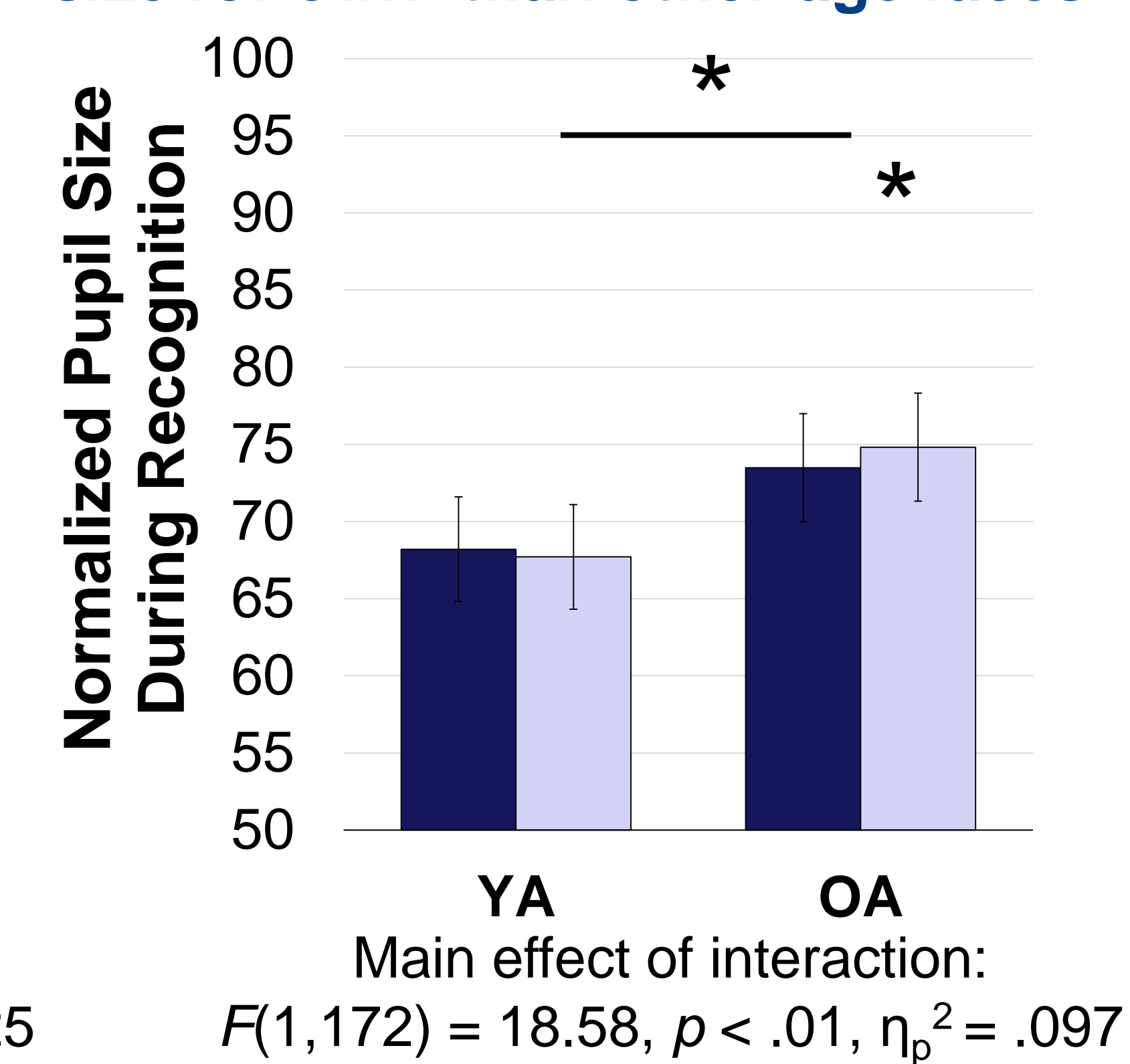
Aim 2 Results

- During testing but not encoding, younger adults showed more fixations for other-age versus own-age faces
- Younger adults look longer than older adults overall for encoding and testing and own- versus other-age faces

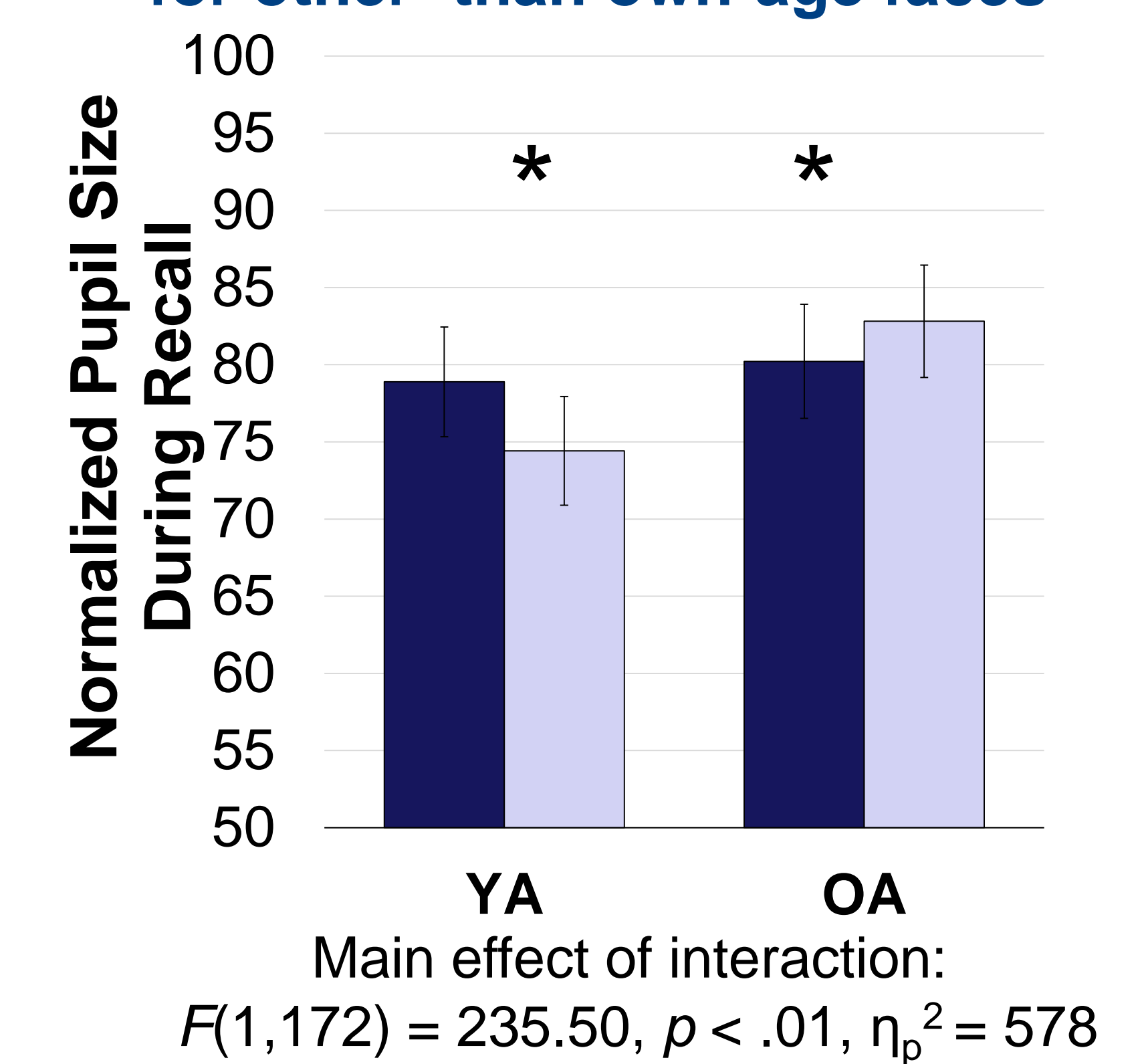
2A. YA larger pupil size for own- than other-age faces; OA larger pupil size for other- than own-age faces



2B. YA pupil size no difference for between face ages; OA larger pupil size for own- than other-age faces



2C. YA larger pupil size for own- than other-age faces; OA larger pupil size for other- than own-age faces



Discussion

- Study is the first to show an OAB in name memory
- OAB was not supported in name recognition, possibly because name recognition is less difficult than name recall *Mather, 2010*
- OA performed worse overall than YA and OA had larger pupil size than YA overall
- Increased pupil size might indicate working harder or increased attention *Sirois & Brisson, 2014*
- Pupil size here suggests increased cognitive load, only when task is difficult (recall, but not recognition)

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