



# ARE PISCES OR AQUARIUS MORE MUSICAL? RELATIVE AGE EFFECT IN FORMAL MUSICAL TRAINING



RAFAEL ROMÁN-CABALLERO<sup>1,2</sup>  
 LAURA TRUJILLO<sup>1</sup>  
 PAULINA DEL CARMEN MARTÍN-SÁNCHEZ<sup>1</sup>  
 LAUREL TRAINOR<sup>2</sup>  
 FLORENTINOS HUERTAS<sup>3</sup>  
 ELISA MARTÍN-ARÉVALO<sup>1</sup>  
 JUAN LUPIÁÑEZ<sup>1</sup>

<sup>1</sup> MIND, BRAIN, AND BEHAVIOR RESEARCH CENTER (CIMCYC) DEPARTMENT OF EXPERIMENTAL PSYCHOLOGY, UNIVERSITY OF GRANADA  
<sup>2</sup> MCMaster INSTITUTE FOR MUSIC AND THE MIND DEPARTMENT OF PSYCHOLOGY, NEUROSCIENCE, AND BEHAVIOUR, MCMaster UNIVERSITY  
<sup>3</sup> DEPARTMENT OF PHYSICAL EDUCATION AND SPORT SCIENCES, CATHOLIC UNIVERSITY OF VALENCIA "SAN VICENTE MÁRTIR"

- Overrepresentation of children attending the Spanish music conservatory born in the first trimester of the year, probably due to an enrolment bias.

## BACKGROUND

- Education systems often group students into annual age bands.
- Students at different stages of cognitive and physical development are mixed in the same group (up to nearly 12 months): **Relative Age**
- That convention has proven to be consequential: **relatively younger children** show lower academic performance (Cobley et al., 2009), lower attendance (Carroll, 1992), higher learning support referrals (Cobley et al., 2009), reduced self-esteem (Thompson et al., 2004), are more likely to receive a diagnosis of ADHD (Morrow et al., 2012), and commit suicide (Matsubayashi & Ueda, 2015).
- In **sports** and chess, overrepresentation of athletes born before the cohort cutoff (1<sup>st</sup> year quarter; Barnsley et al., 1985).

## METHOD

### Primary Sample

- **Participants.** Children and adolescents attending conservatory classes ( $n = 209$ ) and not engaging in musical training (controls;  $n = 113$ ).
- **Questionnaires.** About demographics, inclusion criteria, socioeconomic status (parents' education, parents' salary, and average income of the area of residence), bilingualism, musical training and parents' musical background, *ADHD Rating Scale-IV*, and *Big Five Questionnaire for Children*.
- **Comprehensive measure of attention: ANTI-Vea task** (Coll-Martin et al., 2023).

### Secondary Sample

- **Participants.** Entire census data of students from six conservatories in the South of Spain ( $n = 2182$ ).

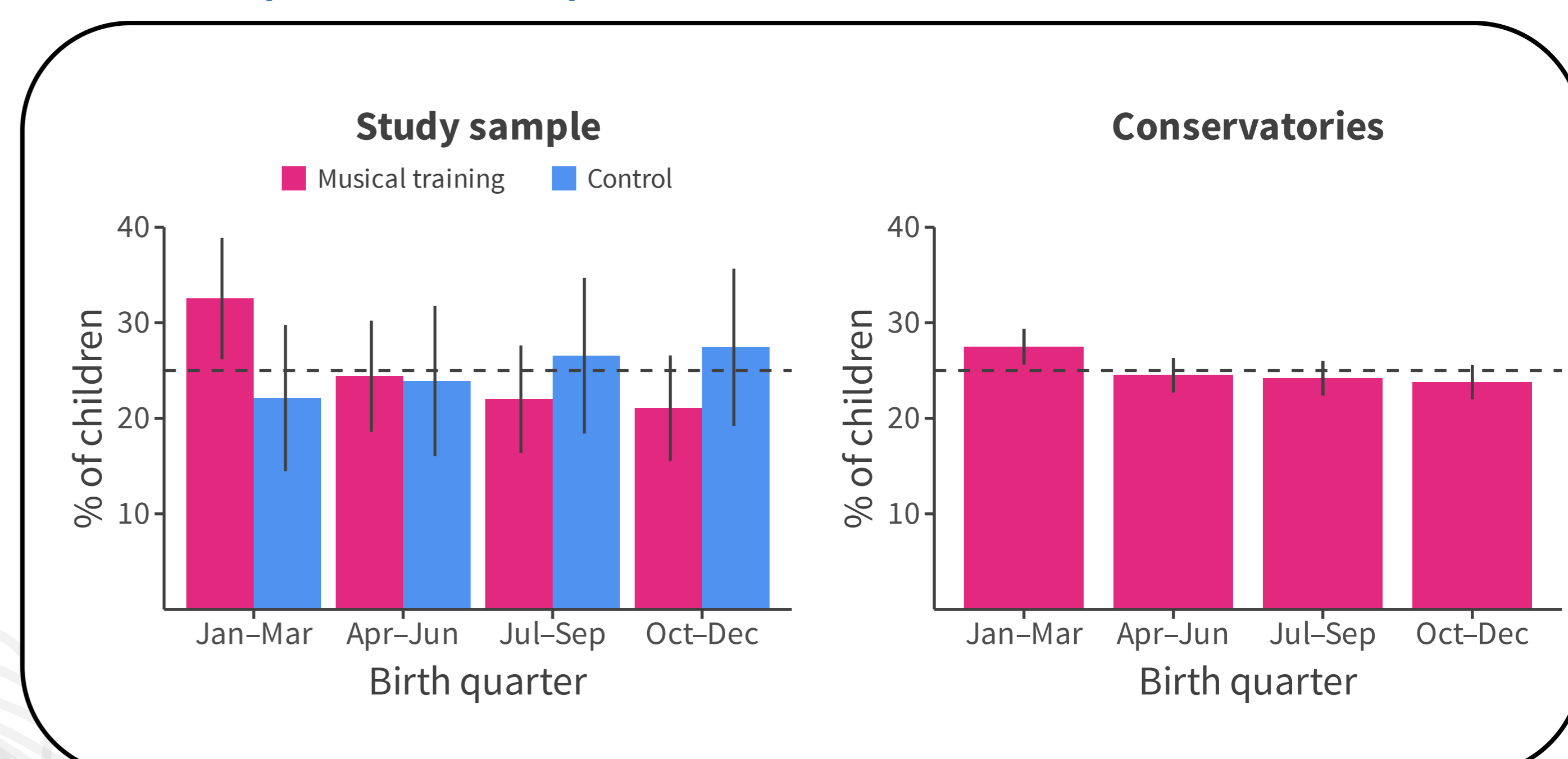
## AIMS & HYPOTHESES

- To investigate the generalizability of **relative age effect (RAE)** in formal **musical training**, in children and adolescents attending Spanish conservatory classes.
- To assess the relationship of RAE with other sources of **selection bias**, such as SES, personality, and parents' musical background.

**Main hypotheses.** RAE would be present in formal musical training and might be independent of other factors of selection bias.

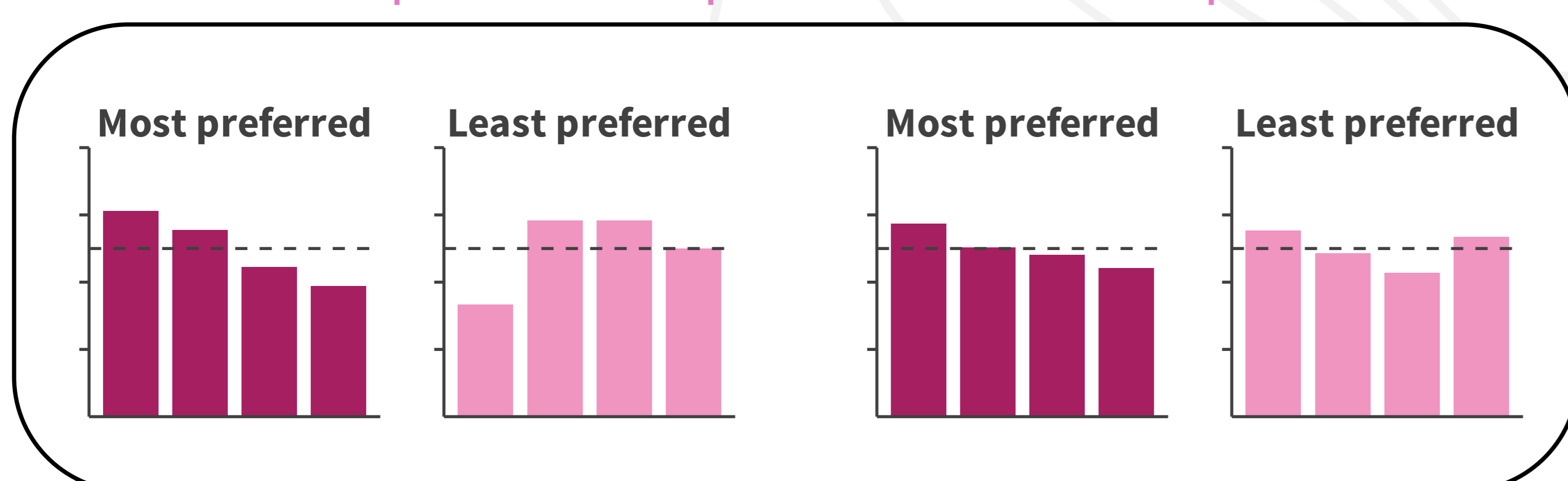
## RESULTS

### RAE pattern in both samples

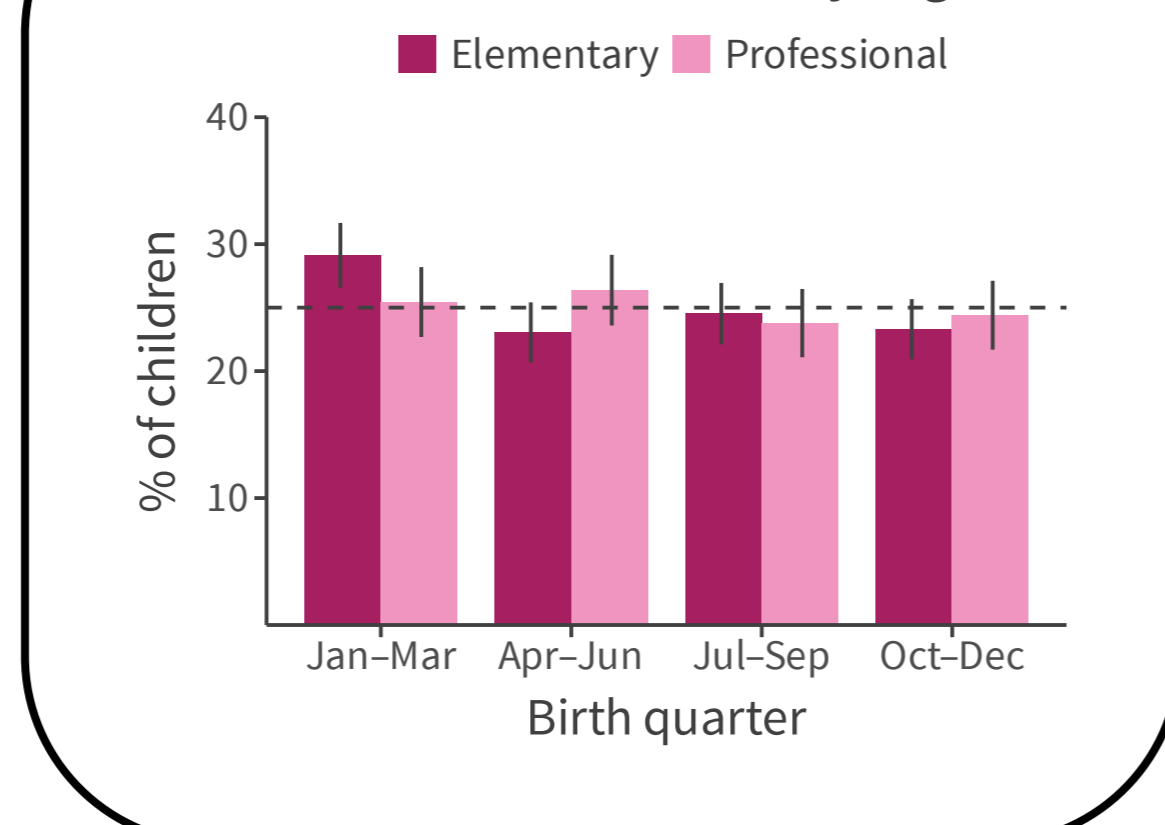


Birth quarter was independent of other source of selection bias (correlation matrix) and it is a good predictor of group classification (ROC curve)

### RAE was more pronounced for most preferred instruments in both samples



### RAE across conservatory degrees



RAE was more pronounced in the first courses of the conservatory

## DISCUSSION

### Early selection

The fact that RAE did not increase throughout the courses suggests early mechanisms, at the very moment of selection, and that the role of music teachers may be more limited than in sports.

### Enrolment bias

Parents' interpretations of their children's skills and competence might generate an asymmetrical distribution already within the applicants (**self-restriction enrolment bias**; Hancock et al., 2013).

### Entrance exam

In the case of relatively younger children that decide to enroll, the entrance exam to the conservatory based on musical aptitudes is likely to favor the skills of relatively older children, which will also affect the instrument selection.

### A collaborative activity

Smaller pattern presumably due to the reduced relevance of group classes and the goal is to perform collaboratively without a rival.

## REFERENCES

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