

Adults' facial age estimation across the life span

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introduction

- Previous studies on facial age estimation have focused on adults faces, typically examining how accurately people can estimate the age of individuals aged 18 and above.
- It has been suggested that the age of children's faces may be easier to estimate due to distinctive cranial and facial structures. However, this hypothesis has not yet been directly tested.
- Changes in facial structure in childhood provide rich and reliable information for estimating age based on facial appearance.

The current study

- The present study aimed to fill in the gap by examining how adult participants estimate the ages of faces ranging from infancy to old adulthood (ages 1-89).

Stimuli and design

- Participants viewed 178 facial images (89 age levels × 2 genders; 79 females, 79 males), ranging between the ages of 1 to 89.
- All images were standardized in size (480×600 pixels) and presented in a random order.
- The Facial images were acquired from the publicly available UTKFace dataset, which contains face images labeled with age and gender.

Method

- 80 participants (51 males) were recruited from the Prolific platform. Data were analyzed only for participants whose average age estimates fell within a normal range.
- The experiment was conducted online. On each trial, one face appeared centered on the screen, and participants were asked to type in their best estimate of the person's age in years. There was no time limit.



References

- George, P. A., Hole, G. J., & Scaife, M. (2000). Factors influencing young children's ability to discriminate unfamiliar faces by age. *International Journal of Behavioral Development*, 24(4), 480–491.
- Moyse, E., & Brédart, S. (2012). An own-age bias in age estimation of faces. *European Review of Applied Psychology*, 62(1), 3–7.

Results

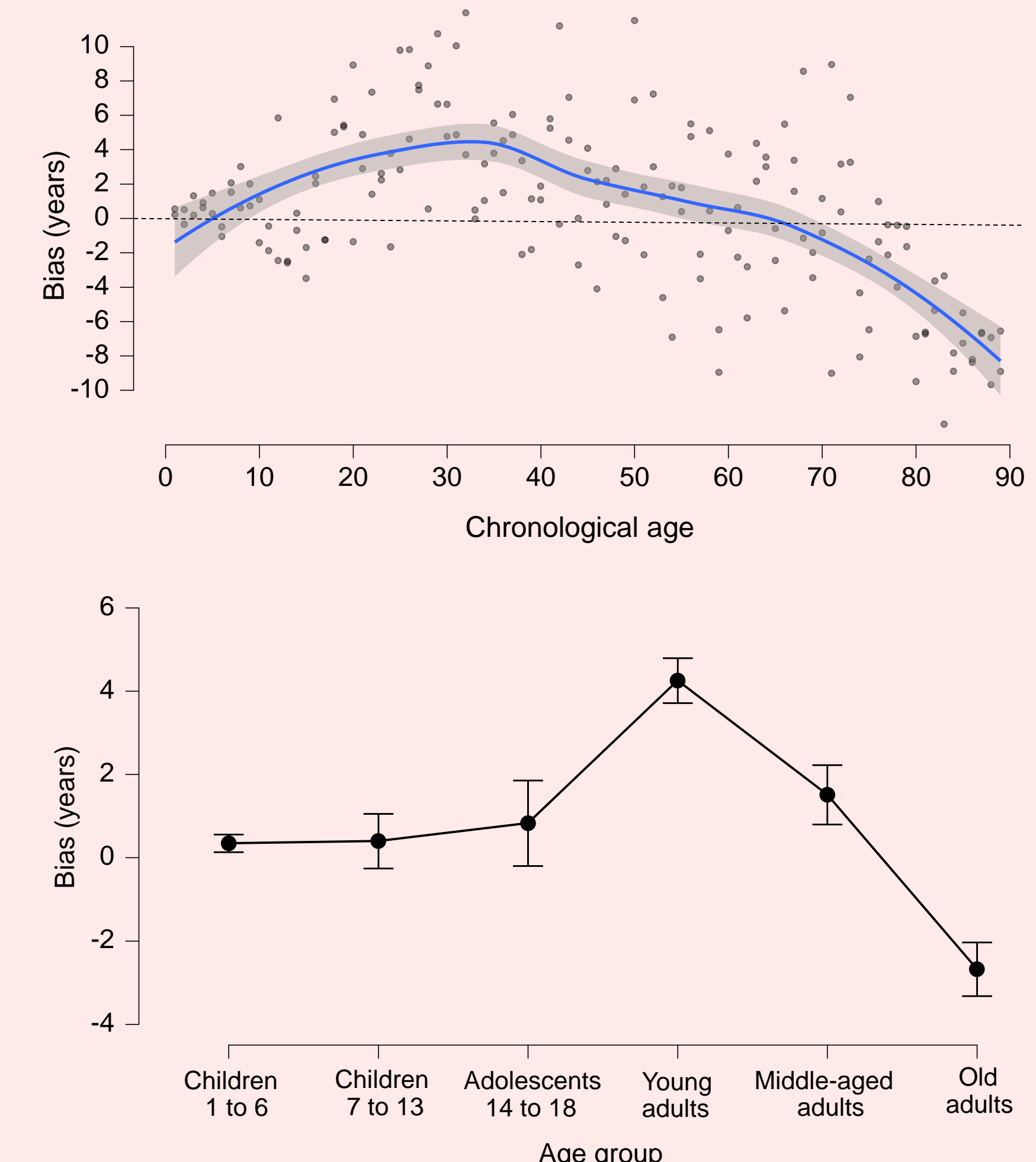
Two types of errors in age estimation:

Bias = $\Sigma(\text{estimated age} - \text{chronological age})/n$

Absolute accuracy = $\Sigma \text{ABS}(\text{estimated age} - \text{mean perceived age})/n$

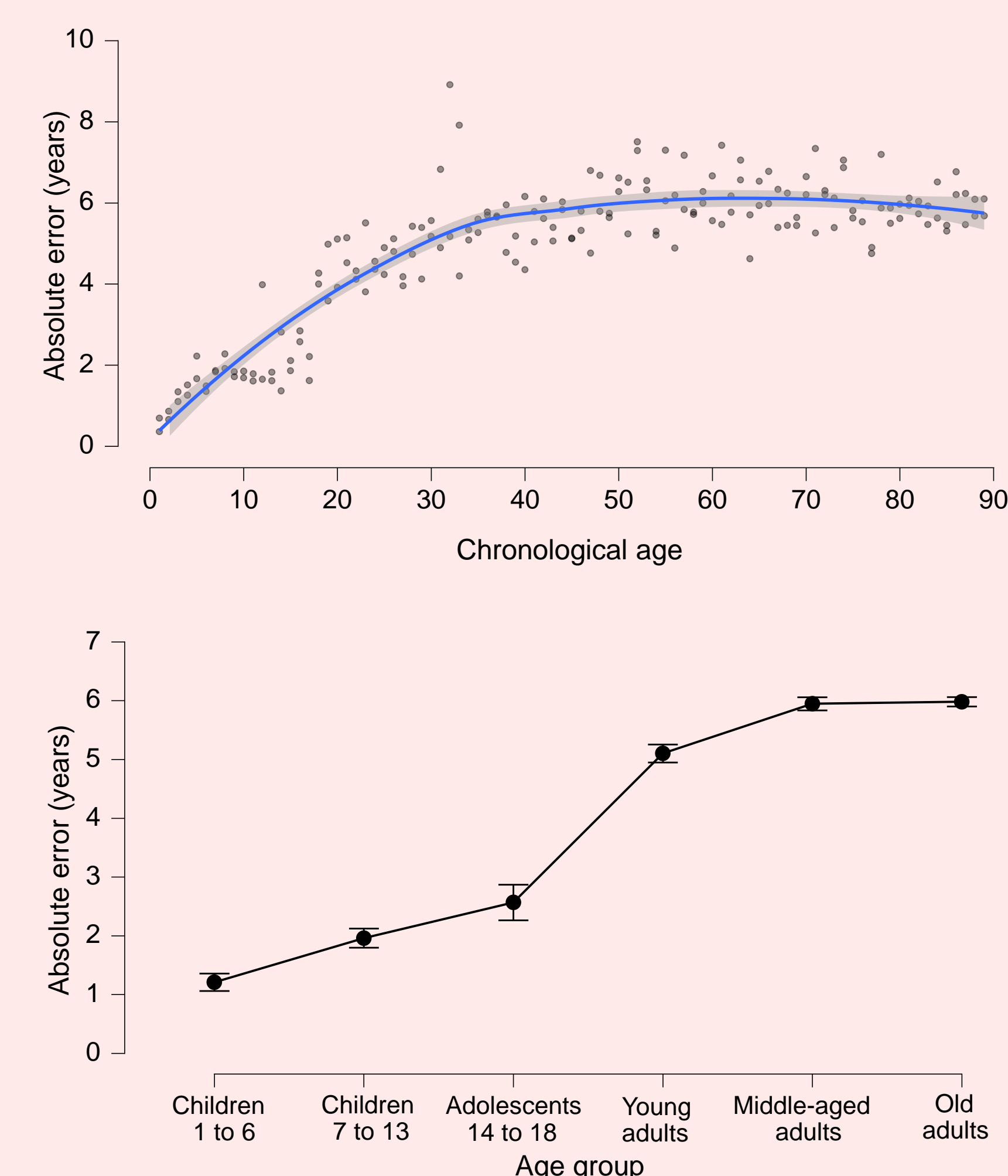
Mean bias

- The ABC (Age-Bias Correspondence) effect - bias is minimal in childhood, increases in adulthood, and turns negative in old age.
- Faces of young children (ages 1–13) were judged with almost no biases, with the lowest bias observed in ages 1–6. Age overestimation began to emerge in adolescence (14–18) and peaked in young adulthood.



Mean absolute accuracy

- Judgment variability was lowest for the youngest faces (1–6) and increased with age. A sharp rise occurred between adolescence (14–18) and young adulthood, after which variability plateaued, and even started to decrease. This suggests that adults are more accurate when estimating the age of children compared to adults.



Conclusions

- Directional bias in age estimation follows a nonlinear pattern consistent with the ABC effect: bias is minimal in childhood, increases and peaks in adulthood, and then reverses in older age. Notably, bias begins to rise during adolescence (around the ages of 15–20), suggesting a developmental shift in apparent facial age.