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Age differences in recognizing affective stimuli: A meta-analysis



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Past work: **Age differences** in recognition are **smaller** for **affirming positive stimuli**

» *Positivity effect* (Mather & Cartensen, 2005)

Two proposed explanations:

- » **Discrimination** (Mather & Cartensen, 2005):
Older adults encode positive stimuli better than other stimuli
» Easier to discriminate *studied* positive stimuli from *unstudied*
- » **Response criterion** (Kapucu et al., 2008):
Older adults are more apt to affirm positive stimuli as recognized, *whether studied or not*
» More liberal response criterion

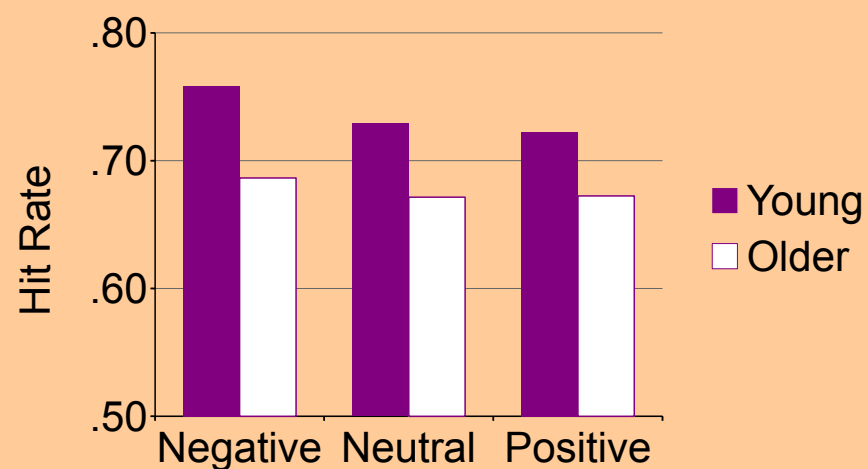
META-ANALYSIS

34 recognition memory experiments
Total $N = 1159$ older adults, 1240 young adults

Inclusion criteria:

- » Both **older and younger adults** included
 - » **Affective valence manipulated**
 - » **Sufficient information** available to calculate:
 - » **Discrimination (d')**
 - » **Response criterion (c)**
- (Green & Swets, 1996; Macmillan & Creelman, 2005)

RESULTS: HIT RATE

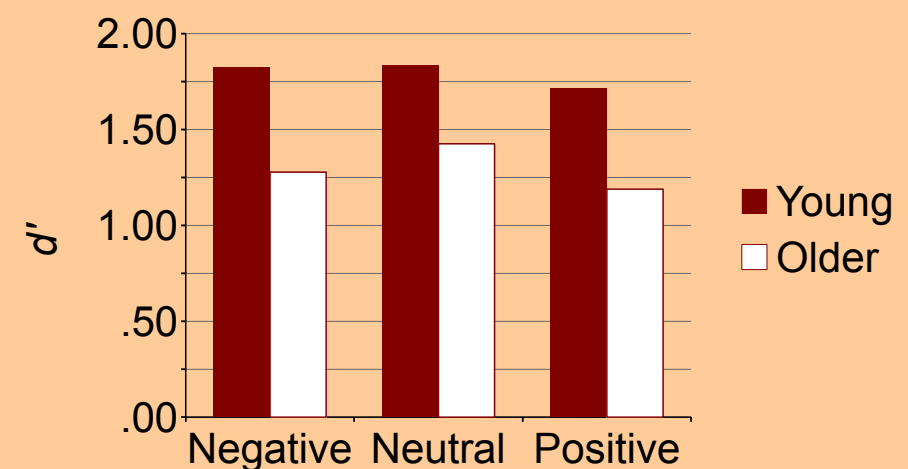


- » Replicating past results...
 - » Age differences **smallest** for **positive** stimuli
 - » And **largest** for **negative** stimuli

Why are age-related **hit rate** differences smallest for positive stimuli?

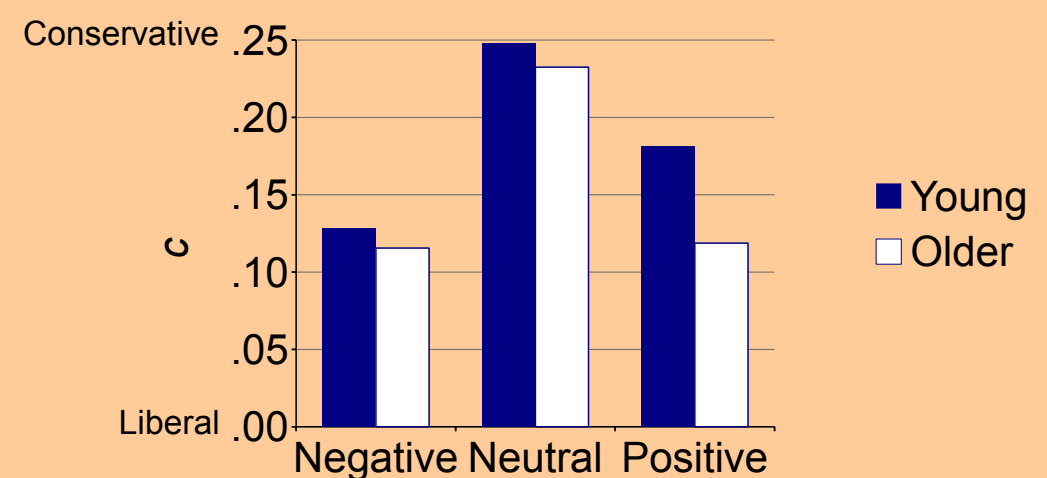
Decompose recognition memory behavior into **discrimination** and **response criterion**.

RESULTS: DISCRIMINATION (d')



- » Positivity effect **not** observed in **discrimination**
 - » Age differences smallest for **neutral** stimuli!

RESULTS: RESPONSE CRITERION (c)



- » Positivity effect **does** appear in **response criterion**
 - » Older adults have **more liberal** criterion for **positive** stimuli!
 - » Thus, more hits (and also more false alarms)

ACKNOWLEDGEMENTS

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CONCLUSION

Age-related positivity effect in recognition memory **hit rates** appears to be driven by **criterion placement**.

Older adults **not** better at old vs. new **discriminations** for positive stimuli than for neutral or negative stimuli.