

The effect of individual differences on the positivity effect across the lifespan.

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Background

- The positivity effect (PE) is thought to be a response to shortening future horizons.
- The consequences of PE is that older adults pay more attention to and have better memory for positive stimuli.
- However, depression and sub-clinical low mood are also common in aging, and are associated with greater attention to negative stimuli.
- Few studies have considered the impact of individual differences on PE.
- We examine associations between individual differences and PE in two studies examining memory and attention.

Hypothesis

- Individual differences will influence presentation of PE.

Study 1: Memory – Methods

- **Participants:** 72 community dwelling adults (18-85 years)
- **Measures:** Individual differences: Geriatric Depression Scale. Attitude to aging, rated on a 10-point scale.

PE Memory: List-learning task containing 24 positive, negative and neutral words; presented and recalled 3 times.

$$\text{Positivity Score} = \frac{\text{Positive} - \text{Negative}}{\text{Positive} + \text{Negative}}$$

Where Positivity Score >0 indicates positivity

Study 1: Results, Group differences

Table 1: Group demographics, mean (SD)

	Positivity (n=51)	No Positivity (n=21)	Group differences
Age	45.92 (16.72)	42.81 (19.66)	F=.464, p=.498
Sex (m,f)	25,26	9,12	$\chi^2=.227$, p=.796
Depression	3.57 (3.47)	4.95 (4.35)	F=2.03, p=.159
Attitude to aging	6.92 (2.17)	6.05 (2.50)	F=2.21, p=.142

- Individuals displaying positivity did not differ from those who did not on age, low mood, or attitude to aging.

Study 1: Results, Individual Differences

- Stepwise regression to explain Positivity Scores. Independent variables: age, Depression, Attitude to Aging.
- Only GDS was included and explained 15.2% (Beta=-.389) of the variance in Positivity Score (F=12.52, p=.001).
- Beta weights for excluded variables: Age (Beta=.217, p=.058) and Attitude to Ageing (Beta=.157, p=.179).

Study 2: Attention – Methods

- **Participants:** 25 older (>55 years) and 20 younger adults (18-30 years)
- **Measures:** Individual differences: Zung Self-rated Depression Scale. Emotional Regulation Questionnaire (ERQ): reappraisal and suppression subscales.

PE Attention: Emotional Stroop Task. Participants responded to the words, ignoring the faces. An interference score was calculated for positive and negative words.

Interference Score = *Congruent stimuli* – *Incongruent stimuli*
Where Interference Score <0 indicates interferences and Scores >0 indicate facilitation.

Fig 1: Example of emotional Stroop stimuli



Study 2: Results, Group differences

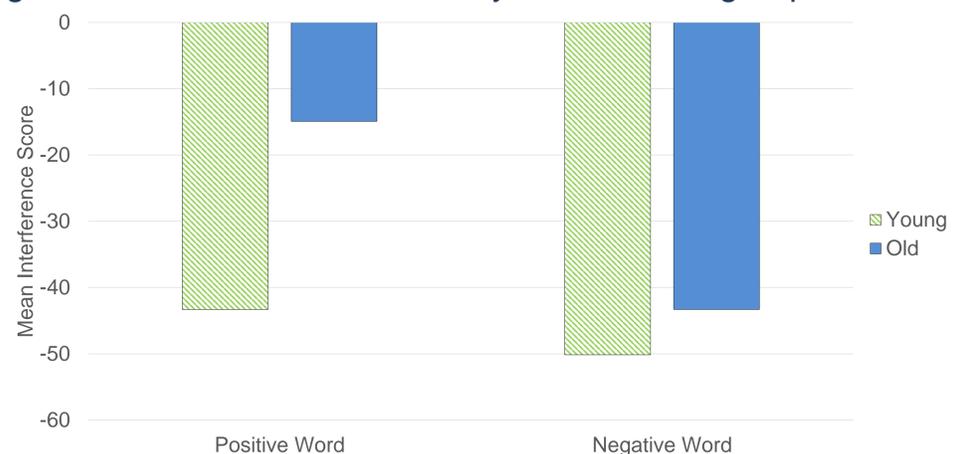
- Older adults had significantly higher ERQ-Reappraisal than young adults (OA, M=5.71; YA, M=4.60; F=9.98, p=.003).
- Older adults had significantly lower education than young adults (see Table 2).
- No group differences on depression or ERQ-Suppression..

Table 2: Group demographics, mean (SD)

	Young (n=20)	Old (n=25)	Group differences
Age	23.30 (2.94)	70.68 (10.31)	F=14.12, p=.001
Sex (m,f)	8,12	13,12	$\chi^2=.643$, p=.550
Education	2.75 (.712)	1.56 (1.56)	$\chi^2=25.58$, p<.001

- A 2x2 (Age group x Interference Score valence) ANOVA revealed no significant effects for
 - age group (F=.512, p=.478),
 - valence of emotional words (F=.954, p=.334)
 - interaction effects (F=.356, p=.554).

Fig1: Mean interference scores by valence and group



- ANCOVA controlling for individual differences did not substantially alter results.
- Controlling for ERQ-Reappraisal affected the main effect of valence but did not reach significance (F=3.87, p=.056).

Study 2: Results, Individual Differences:

- **Older adults** reporting less spontaneous reappraisal (r=.458, p=.021) and more emotional suppression (r=-.430, p=.032) demonstrated more interference to positive words.
- **Younger adults** reporting higher emotional suppression demonstrated less interference to negative stimuli (r=-.468, p=.038).

Conclusion

- These studies show limited support for the PE with age.
- Individual differences in mood and emotional regulation style contribute to explaining PE

