

Matilda White Riley Award Lecture:
Long Life in the 21st Century

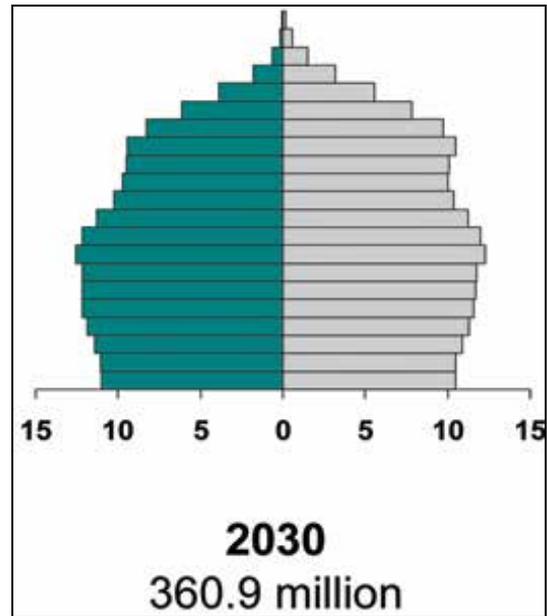
Laura L. Carstensen

Professor of Psychology,
Fairleigh S. Dickinsen Jr. Professor of Public Policy,
Director, Stanford Center on Longevity

NIH, June 18, 2010



US: From pyramid to cube as the population ages

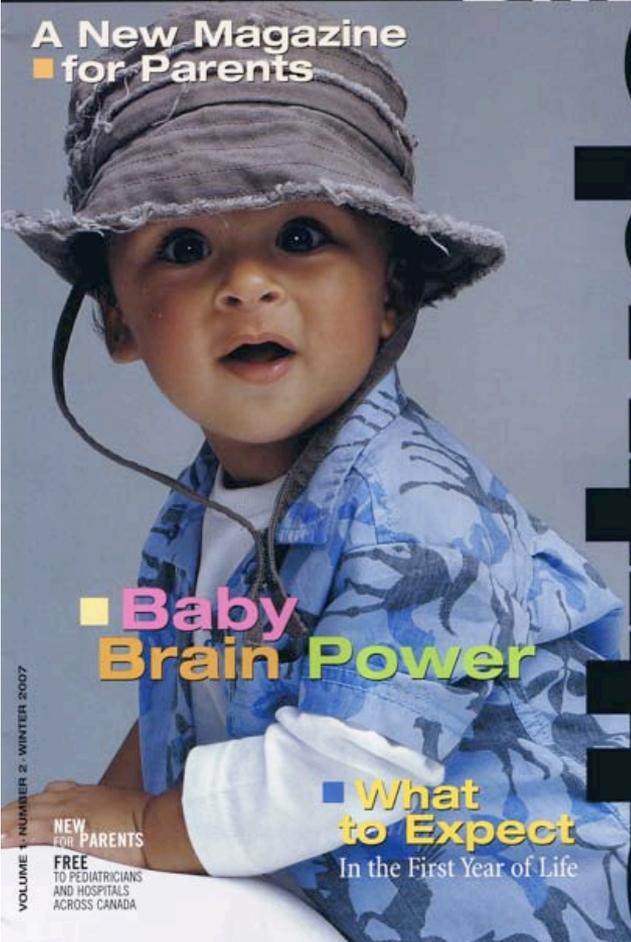




Jeanne Louise Calment
1875-1997

BABY

A New Magazine
■ for Parents



■ **Baby**
Brain Power

■ **What**
to Expect
In the First Year of Life

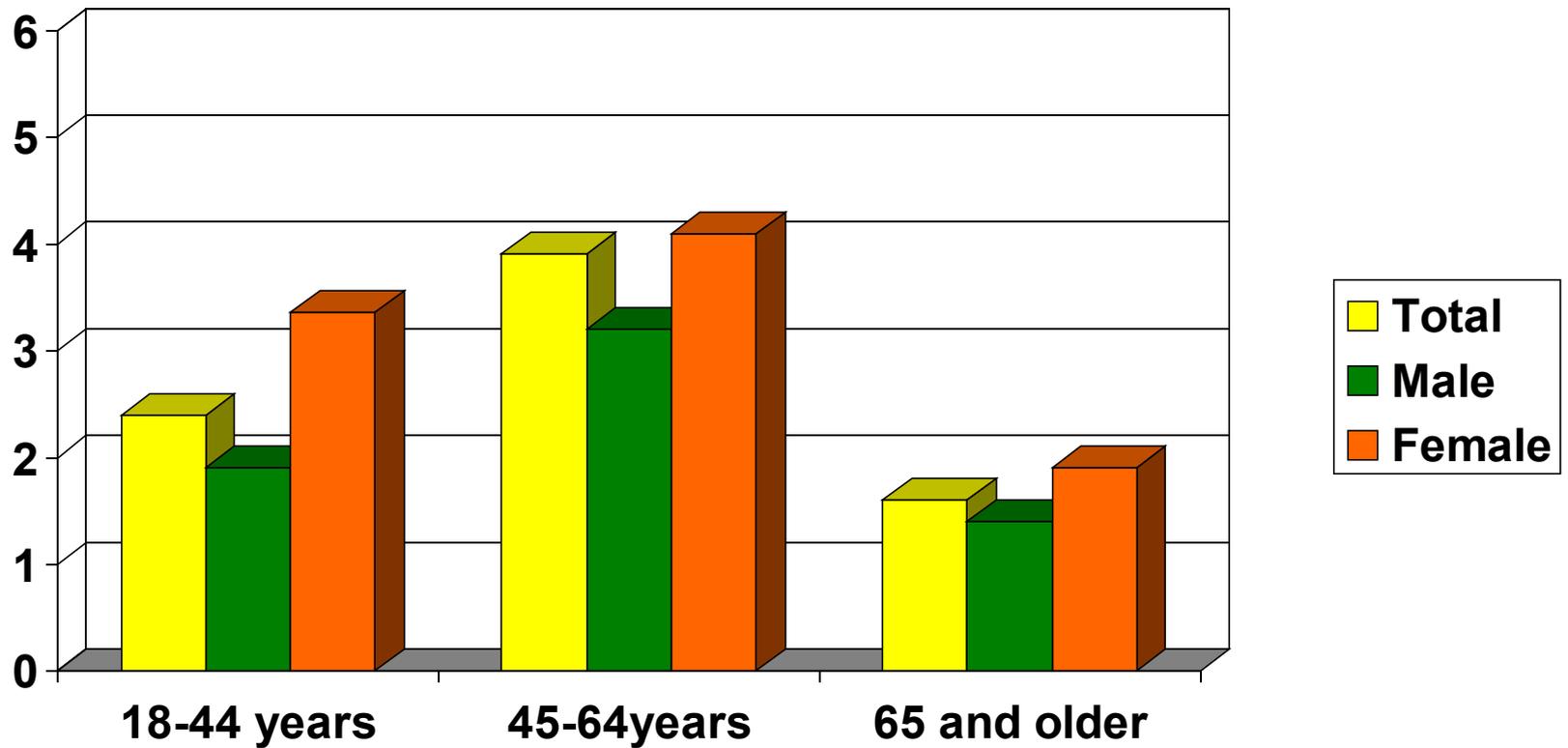
VOLUME 1 NUMBER 2 WINTER 2007

NEW
FOR PARENTS
FREE
TO PEDIATRICIANS
AND HOSPITALS
ACROSS CANADA

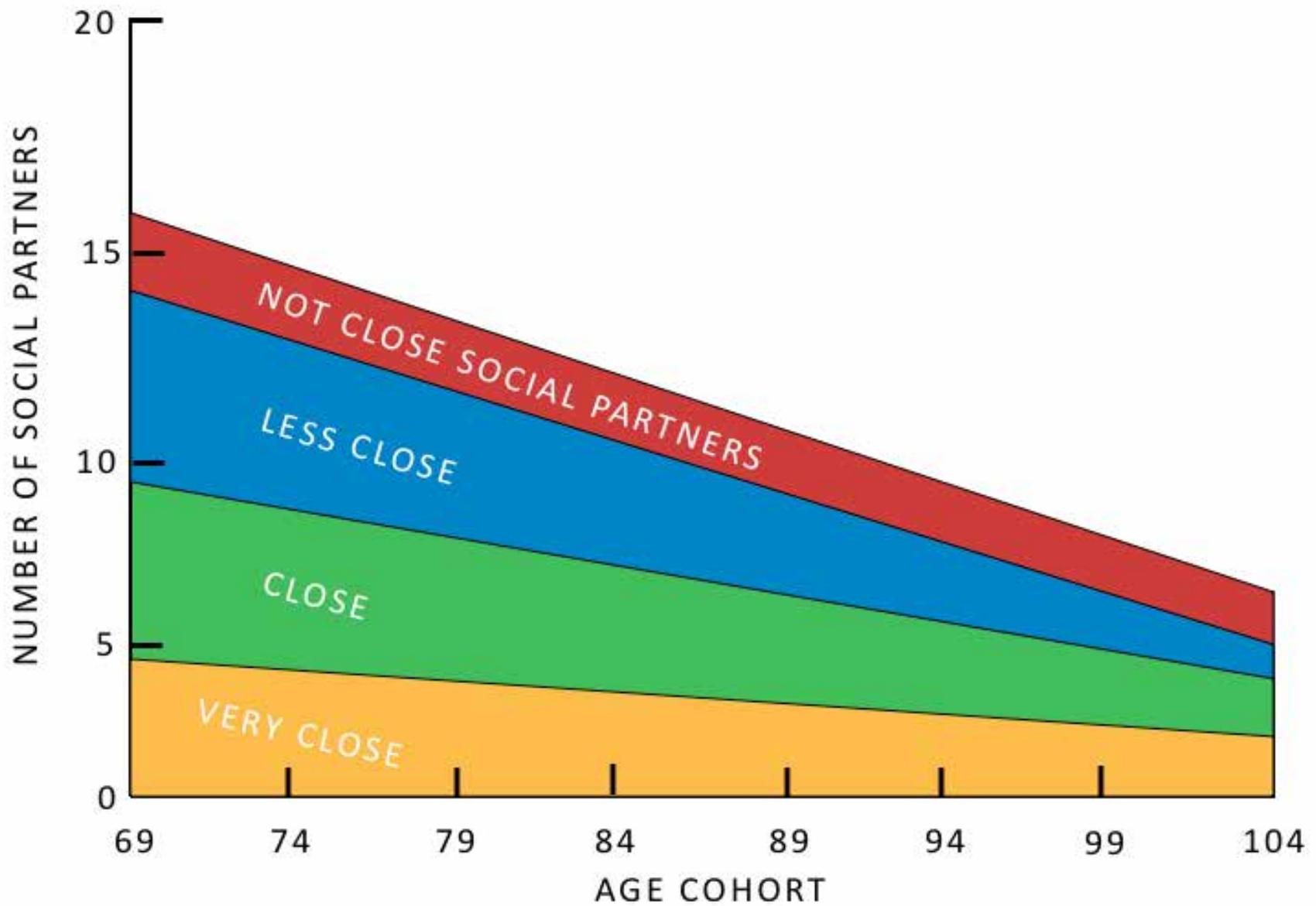
attitude



National Health Interview Survey: Percent reporting Serious Psychological Distress



Centers for Disease Control and Prevention, 2003



Socioemotional Selectivity Theory

Carstensen, 1993; Carstensen et al., 1999; Carstensen, 2006)

- Humans are uniquely able to monitor time – including lifetime -- and do so at both conscious and subconscious levels.
- Goals are always set in temporal contexts.
- Because chronological age is associated with time left in life, goals change across the life span.





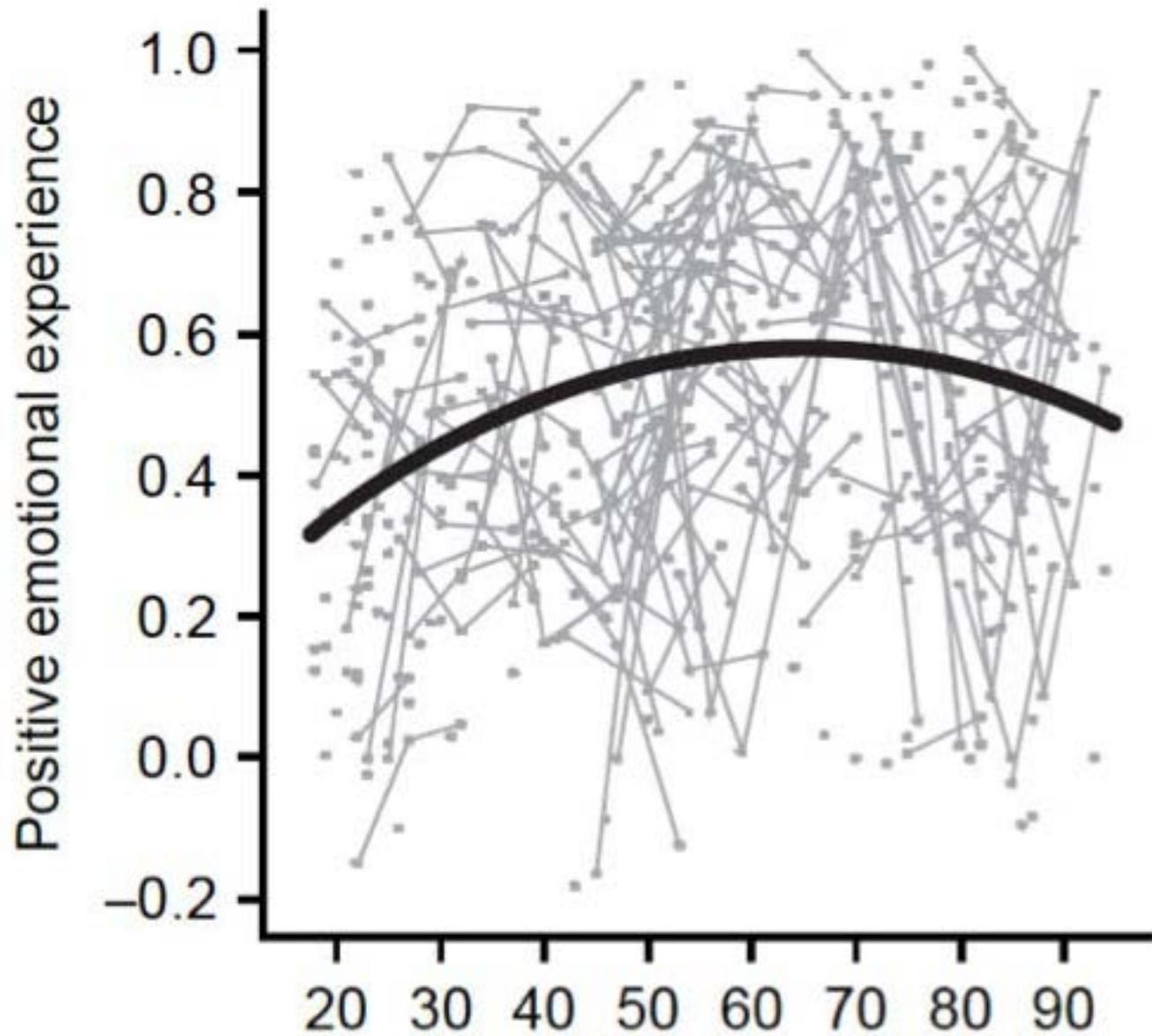
- Expand horizons
- Acquire knowledge
- Meet new people
- Take chances



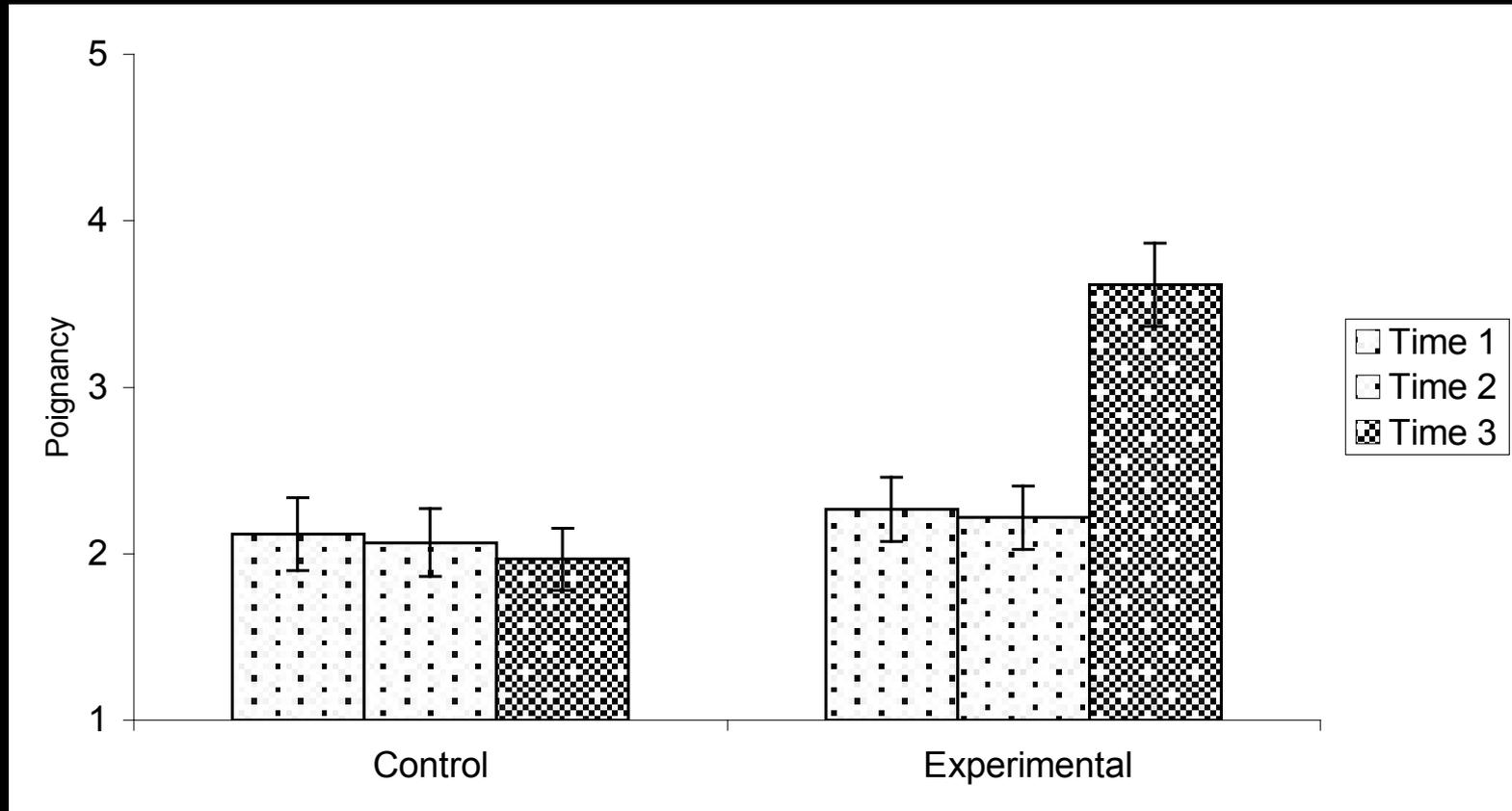
- Live in the moment
- Know what's important
- Invest in sure things
- Deepen relationships
- Savor life

Time horizons influence preferences

- When time horizons are manipulated experimentally, preferences change systematically. Younger people show preferences similar to the old when time horizons are shortened and older people show preferences similar to the young when time horizons are expanded. (Fredrickson & Carstensen, 1990; Fung, Carstensen & Lutz, 1999; Fung, Lai & Ng, 2001)
- When natural occurrences, such as personal illnesses, epidemics, political upheavals, or terrorism prime endings, preferences of the young come to resemble those of the old (Carstensen & Fredrickson, 1998; Fung et al. 1999; Fung & Carstensen, 2006)



Poignancy by Condition



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**Success is within reach.
Don't let time pass you by.**



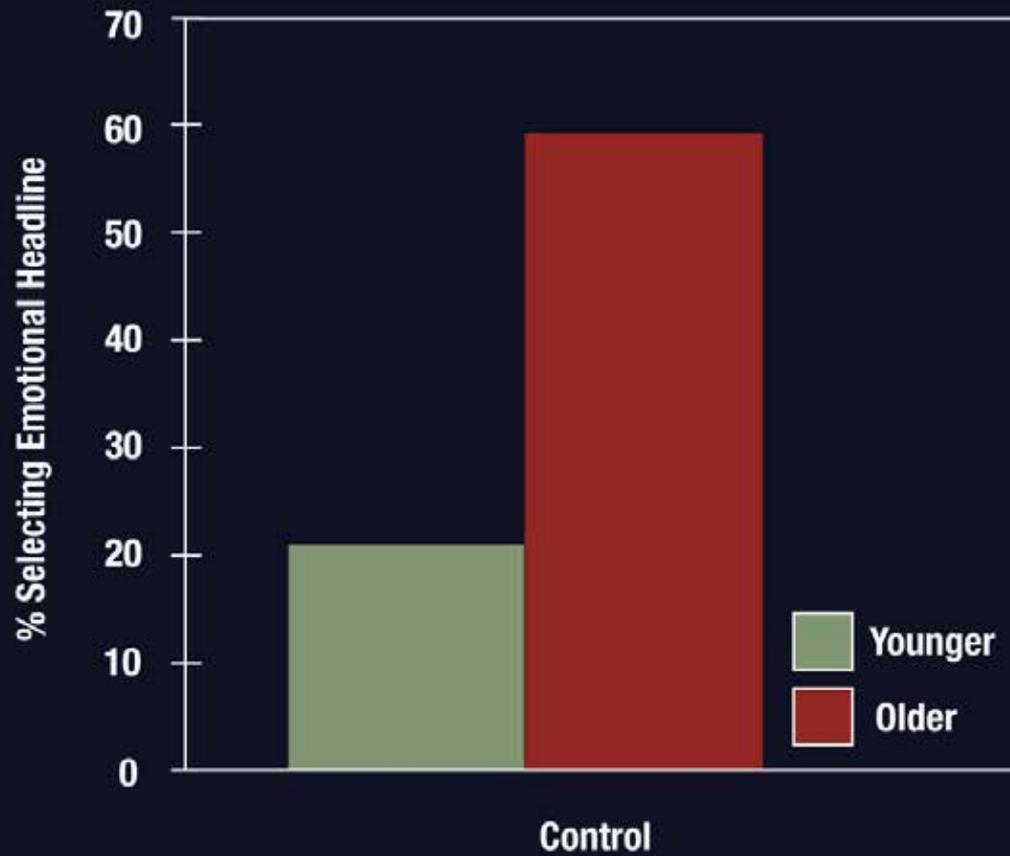
LESTER WATCHES
STANFORD, CALIFORNIA

**Take time for the ones you love.
Don't let time pass you by.**

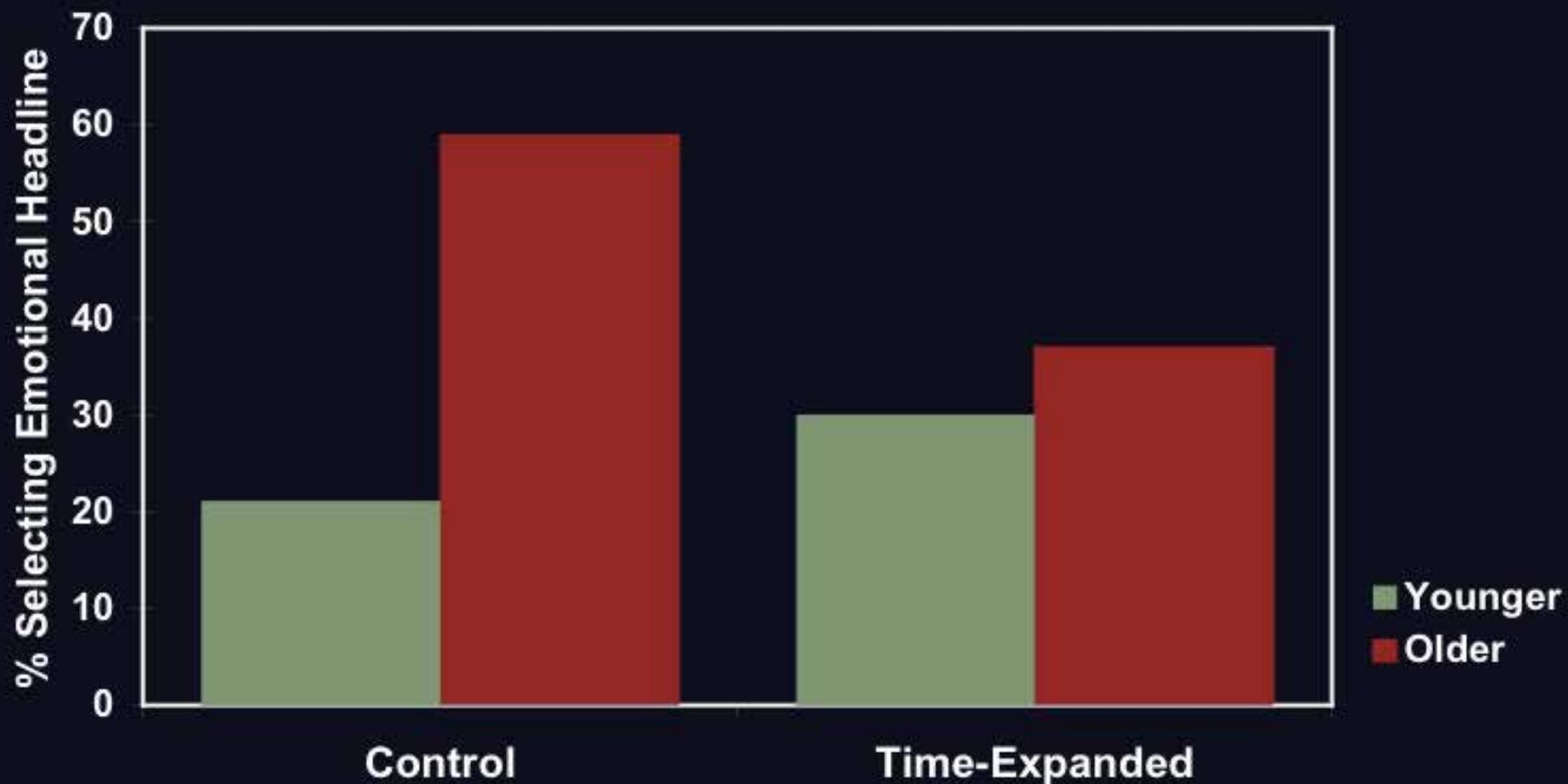


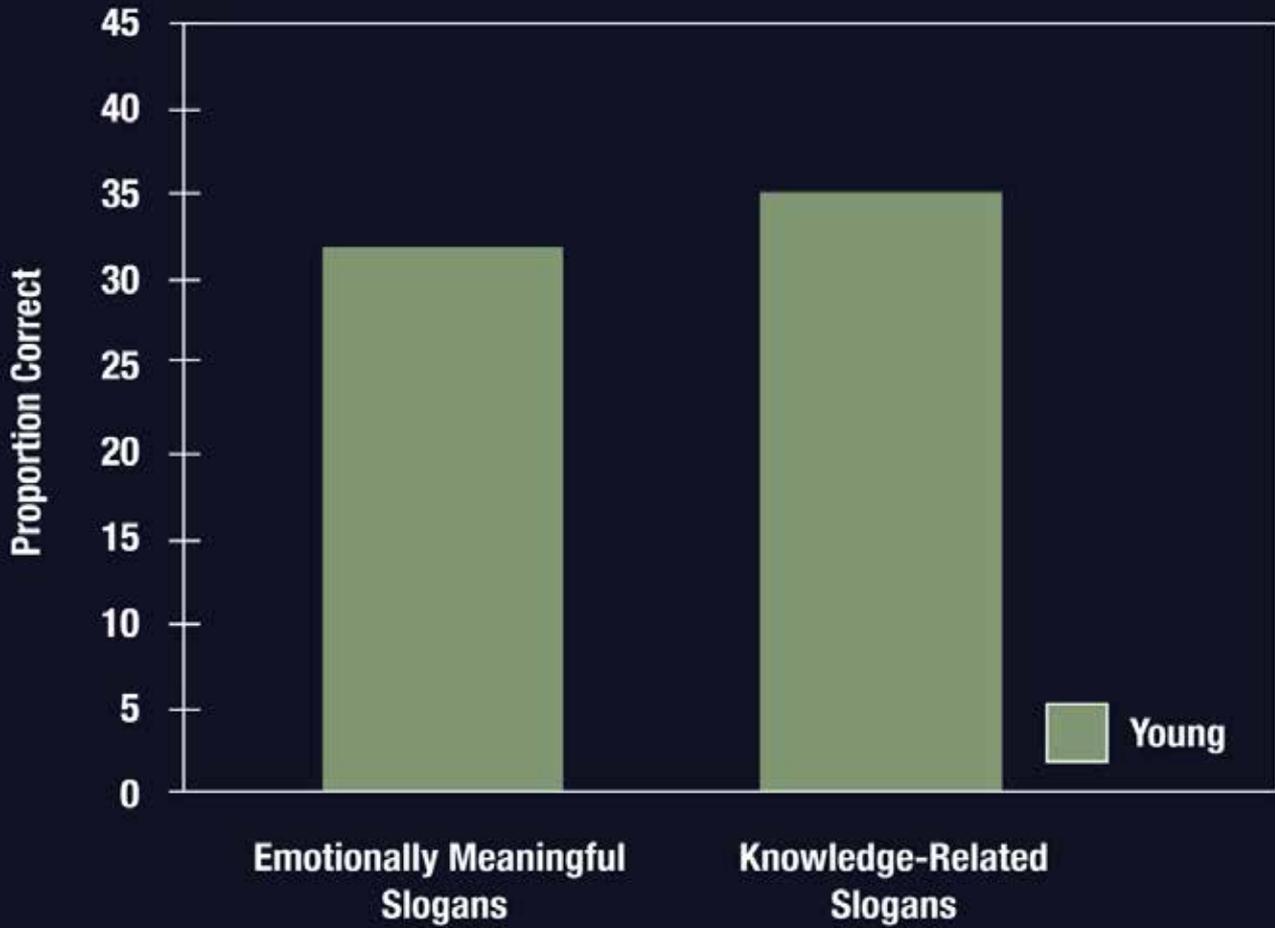
LESTER WATCHES
STANFORD, CALIFORNIA

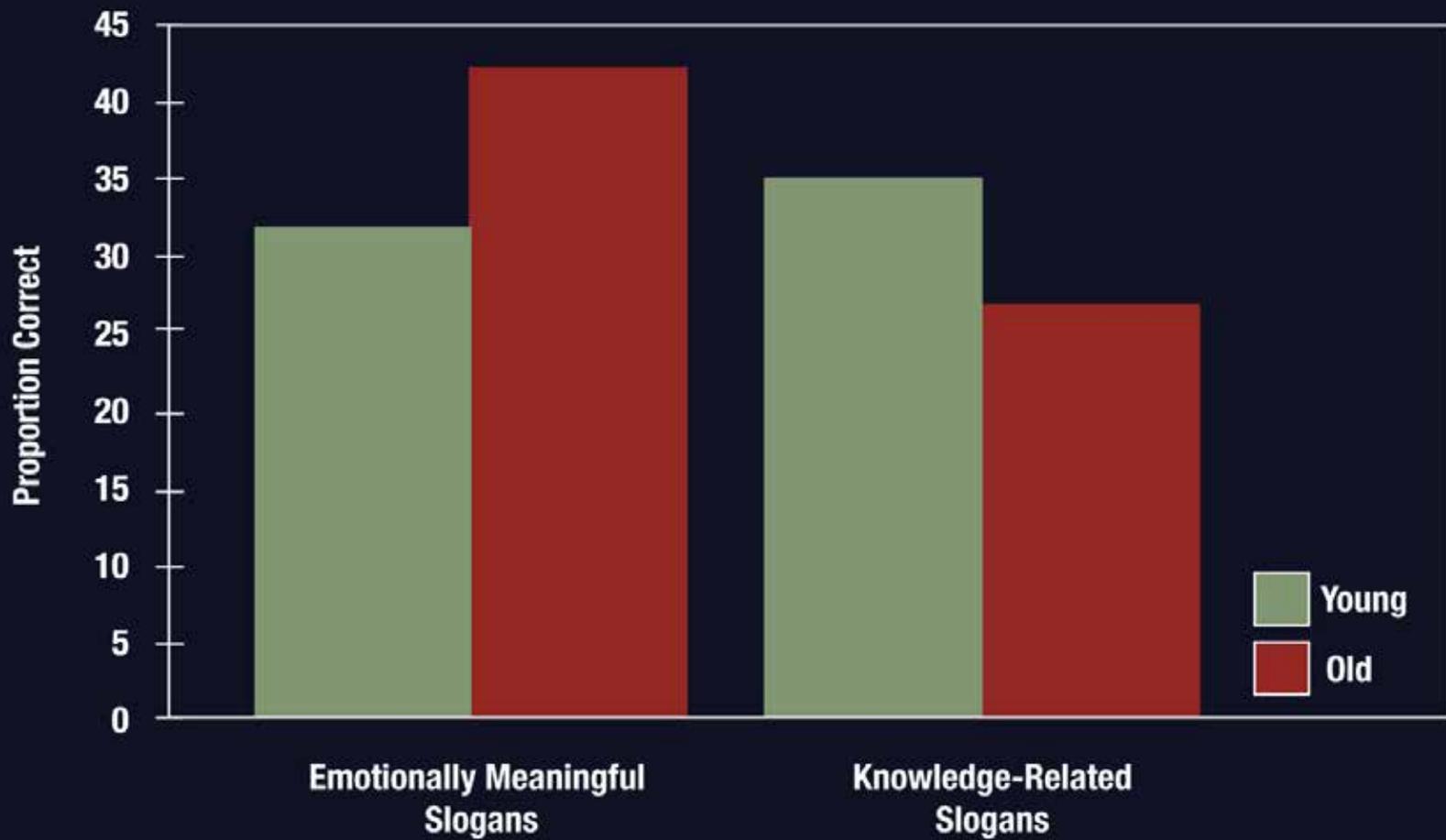
Preferences for Emotional Ads by Age



(2003) *Journal of Personality and Social Psychology*

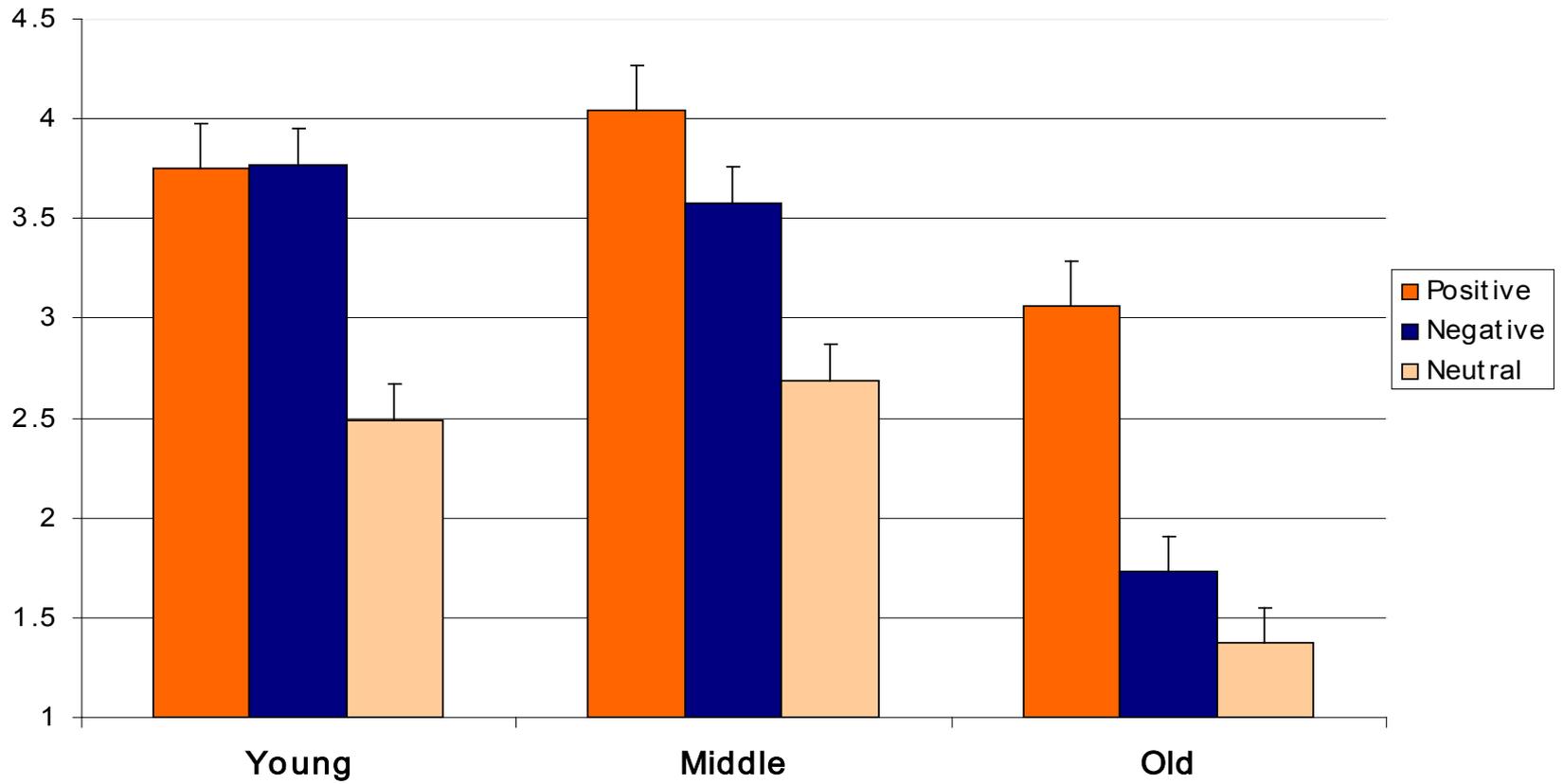




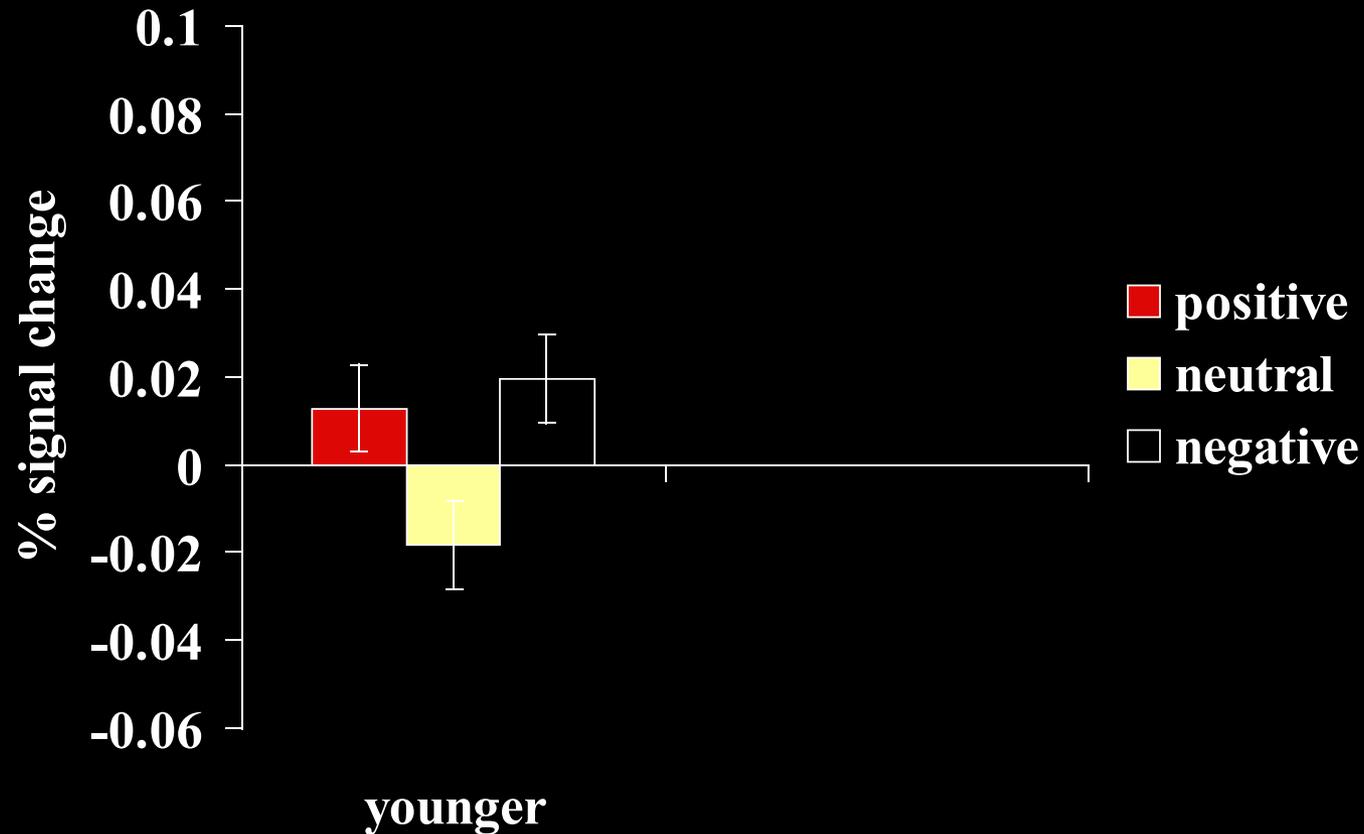


In subsequent studies we identified a relative preference among older people for positive information over negative. We postulate that there is a developmental shift in motivation across adulthood in which a preference for negative information becomes a preference for positive information (Charles, Mather & Carstensen, 2003; Mather & Carstensen, 2003; Mather & Carstensen, 2005; Carstensen, Mikels & Mather, 2006; Lockenhoff & Carstensen, 2008). We call this shift the “positivity effect.”



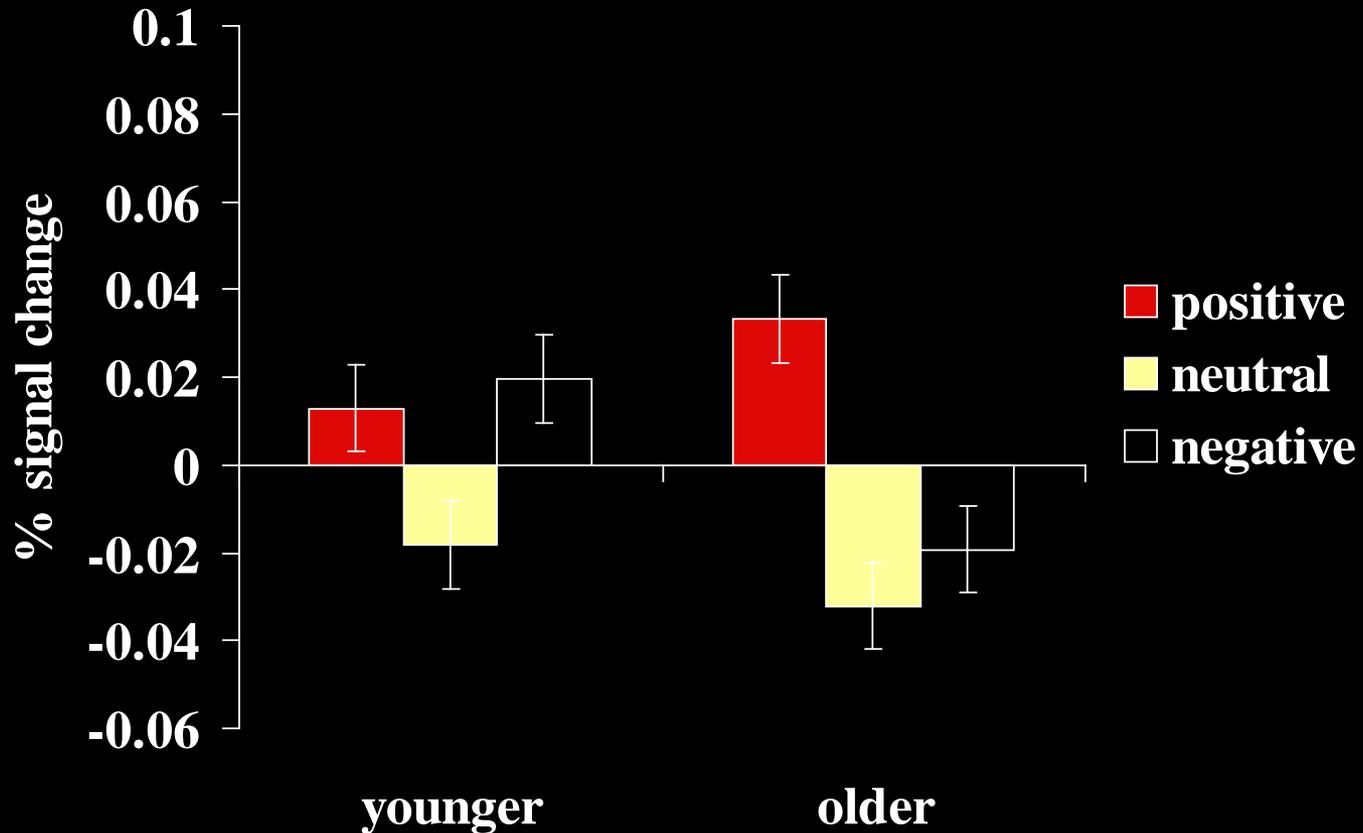


Amygdala activity

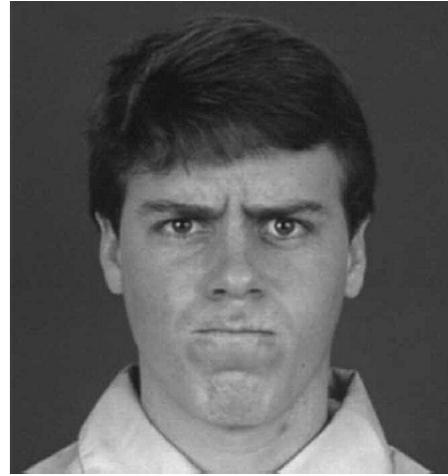
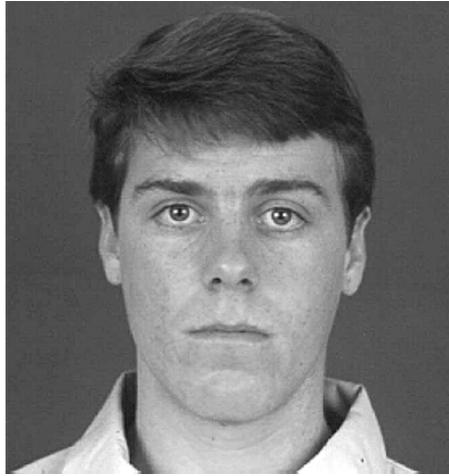


Mather, Canli, English, Whitfield, Wais, Ochsner,
Gabrieli & Carstensen, Psychological Science, 2004

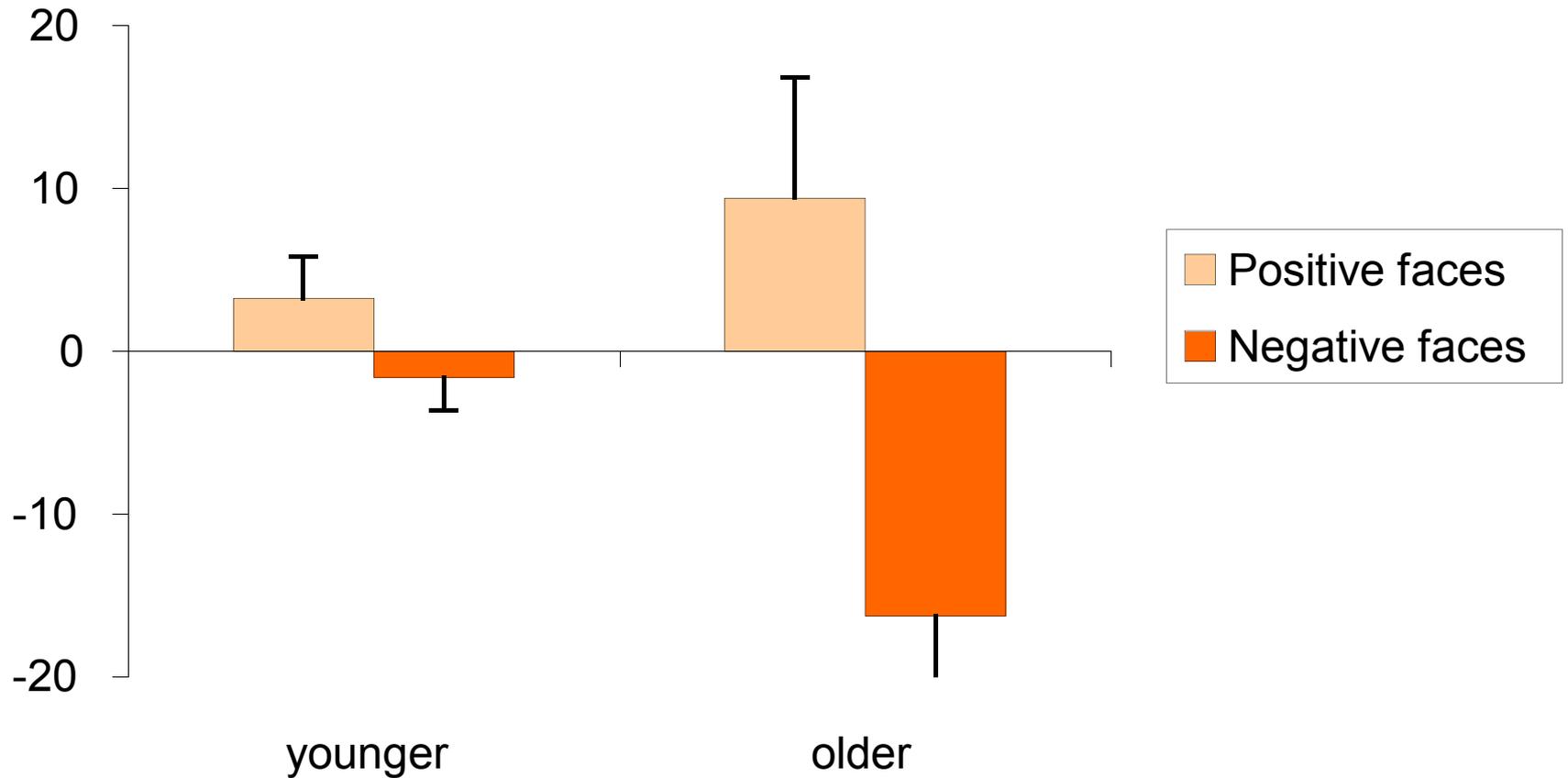
Amygdala Activity

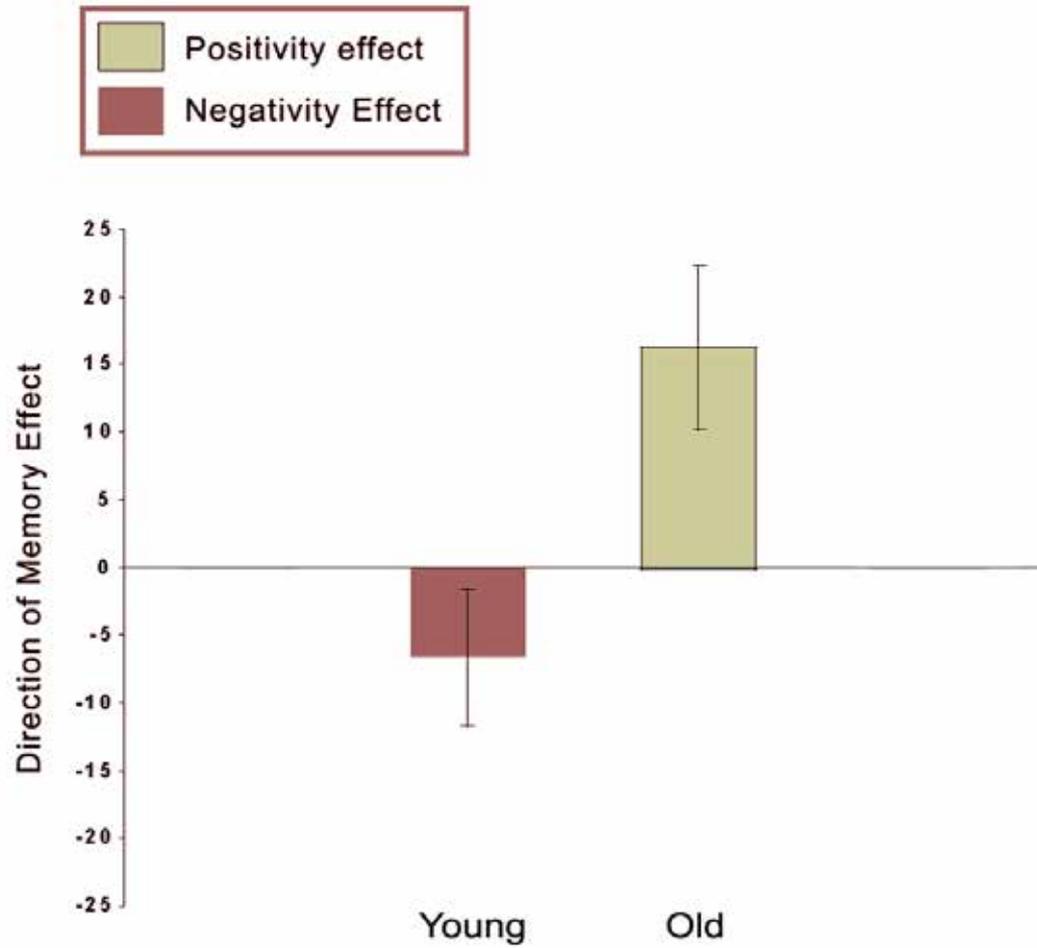


Mather, Canli, English, Whitfield, Wais, Ochsner, Gabrieli & Carstensen, Psychological Science, 2004



Attentional bias scores



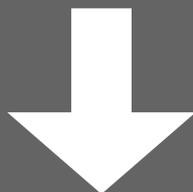




What are the costs and benefits associated with the positivity effect?

Does the positivity effect influence **anticipatory responses** to monetary gains and losses?





Cue

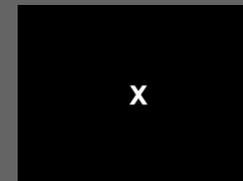
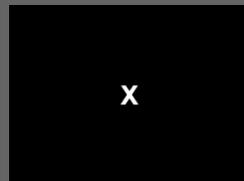
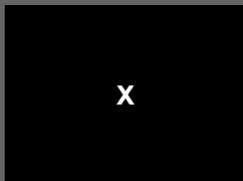
Delay

Target

Delay

Feedback

Delay



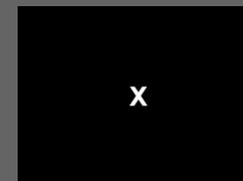
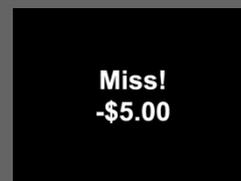
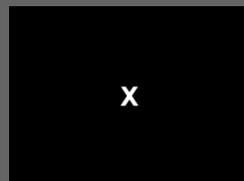
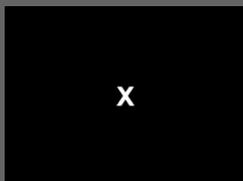
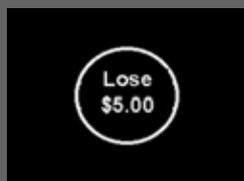
2s

~2s

~2s

2s

2s



Cue

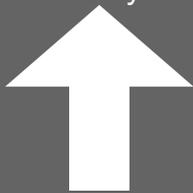
Delay

Target

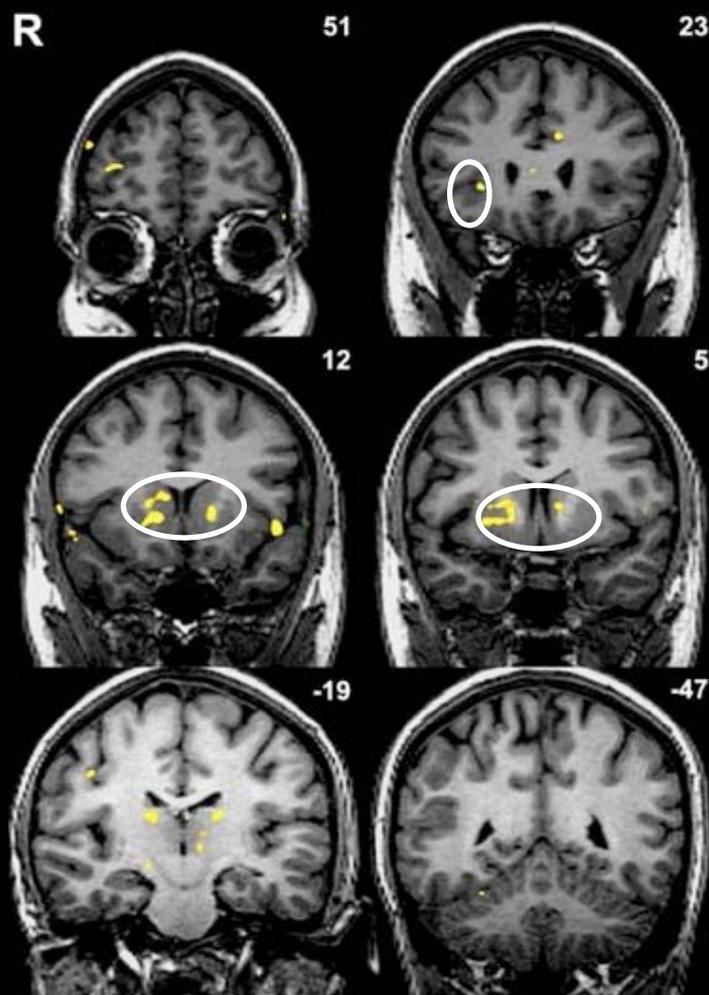
Delay

Feedback

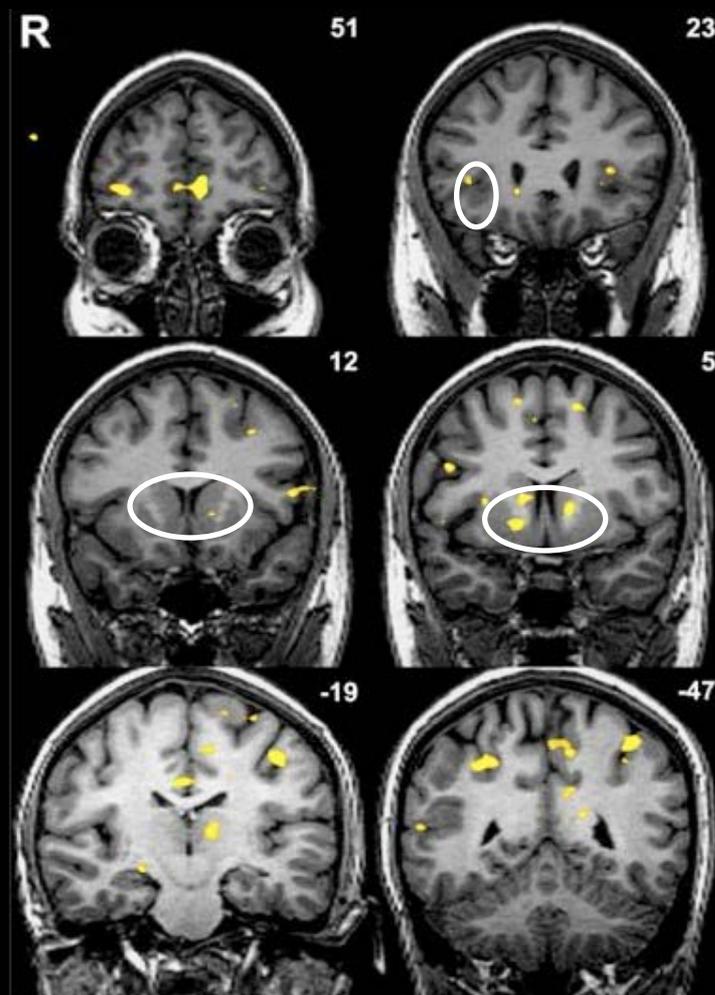
Delay



Gain Anticipation

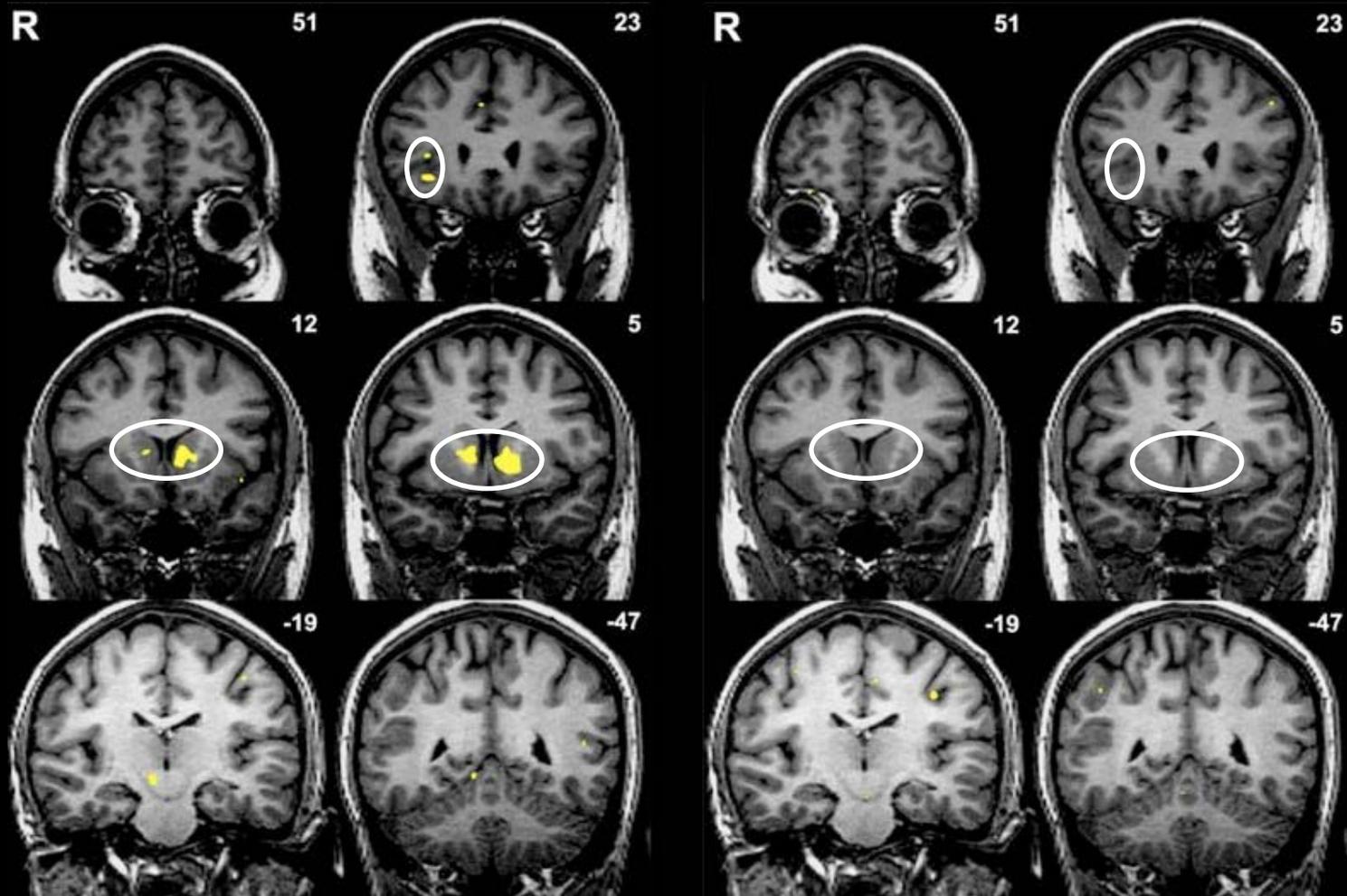


Younger



Older

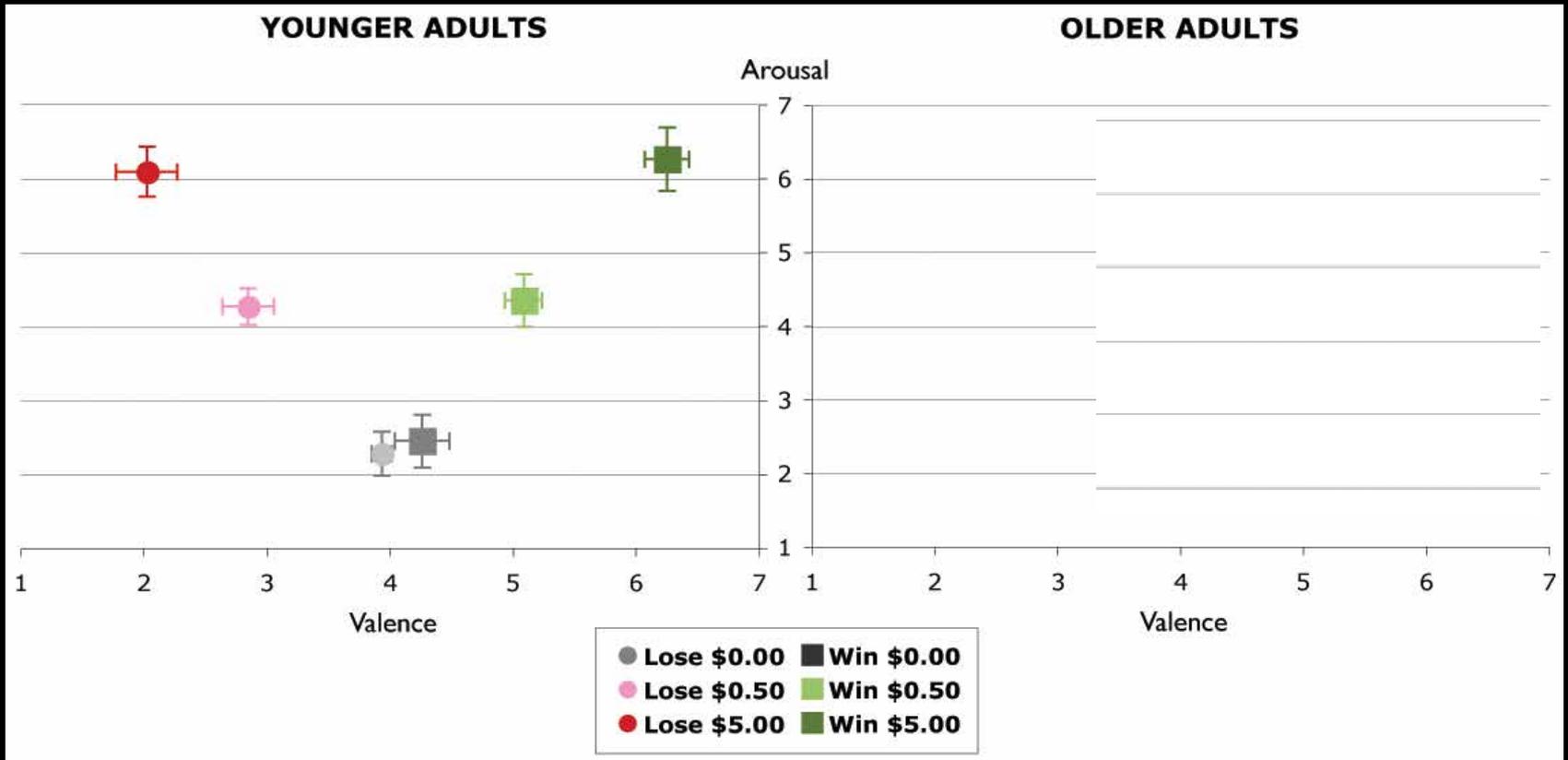
Loss Anticipation



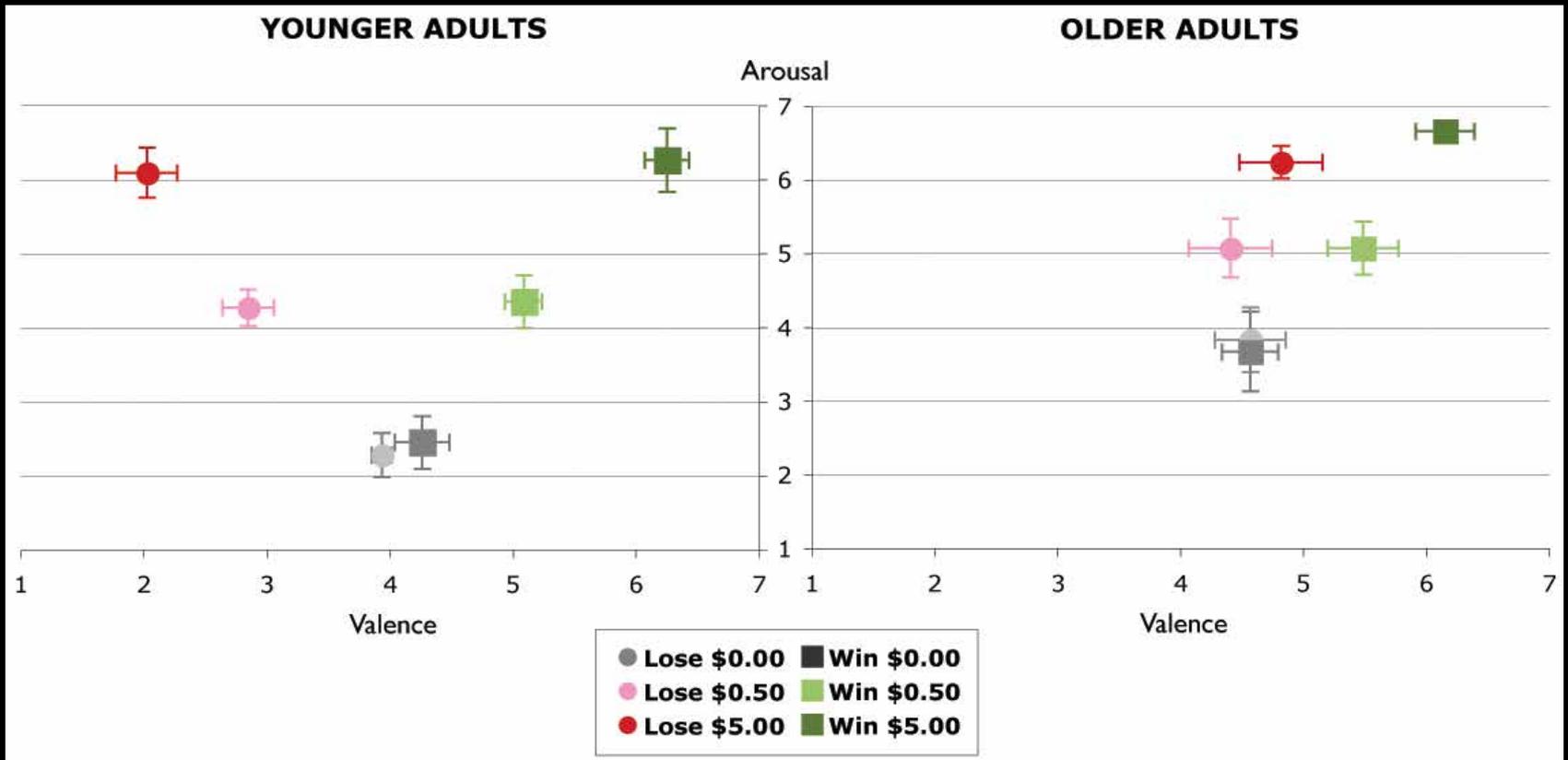
Younger

Older

Cue Ratings

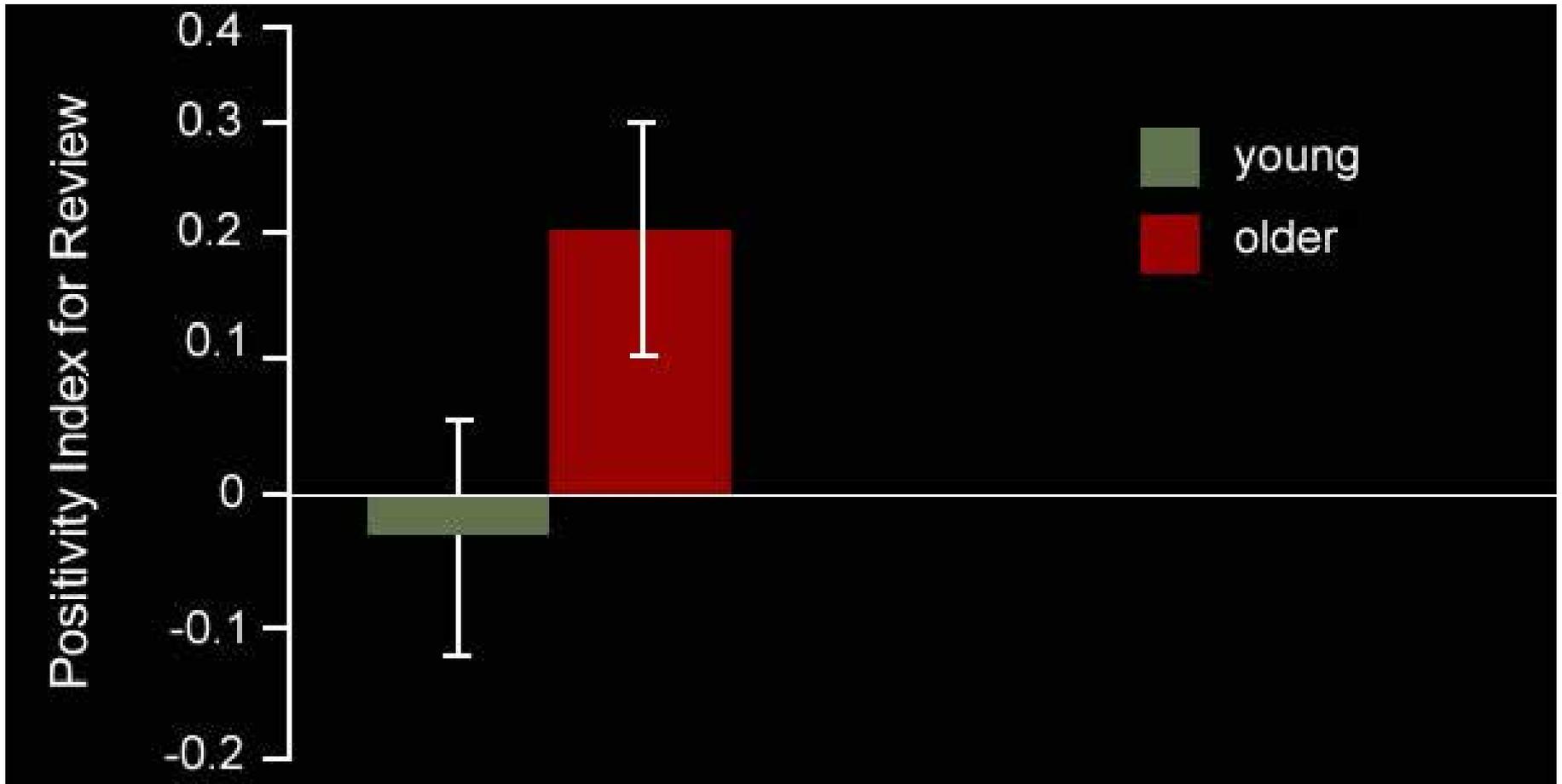


Cue Ratings

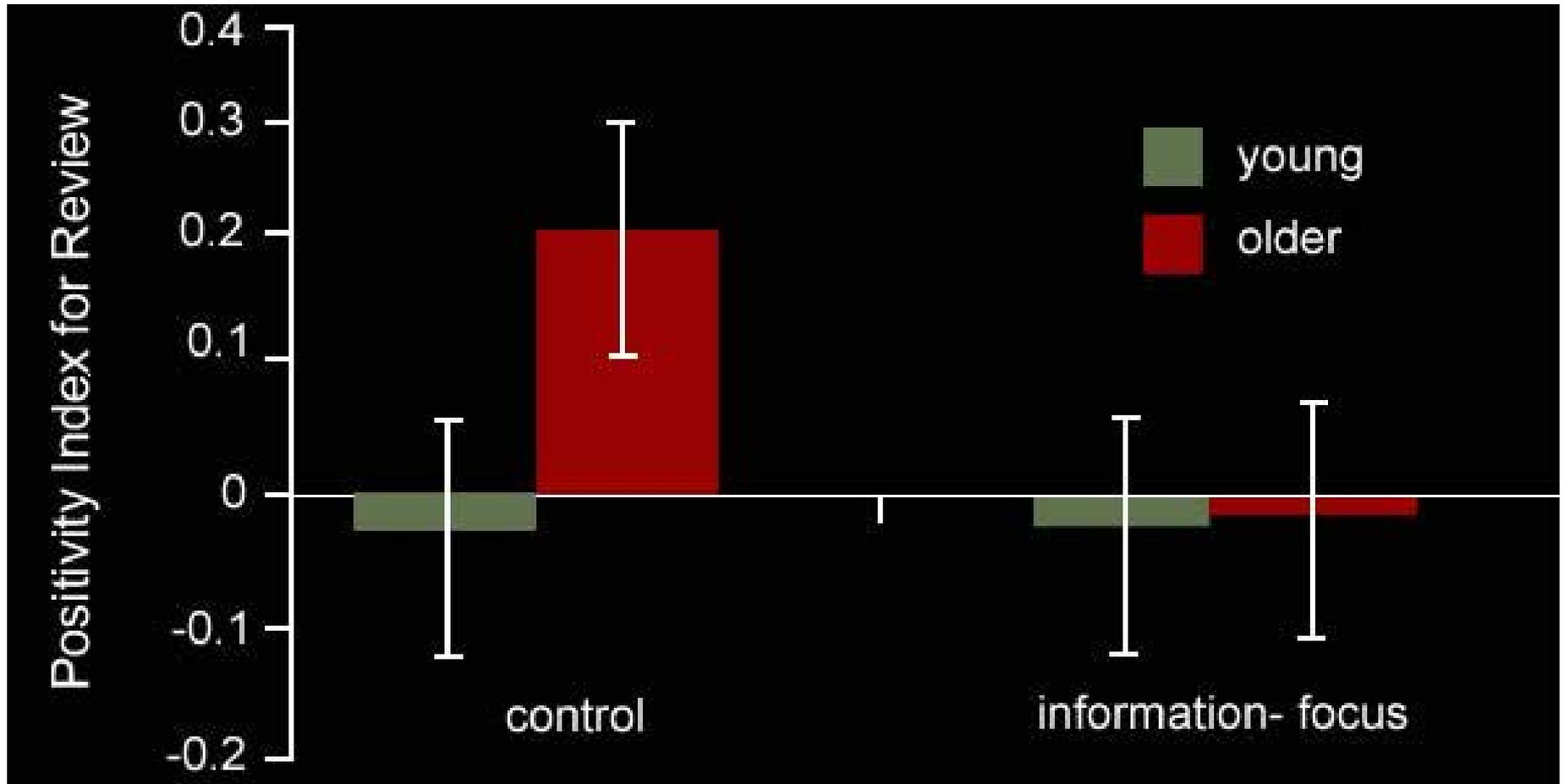


	Preventative Care	After- hours Care	Prescription Drugs	Appointment Availability	Consumer Satisfaction
Plan A	Dark Gray	White	White	Dark Gray	Light Gray
Plan B	White	Dark Gray	Dark Gray	White	Light Gray
Plan C	White	Dark Gray	Dark Gray	White	Light Gray
Plan D	Dark Gray	White	White	Dark Gray	Light Gray

Löckenhoff & Carstensen, Psychology and Aging, 2007



Löckenhoff & Carstensen, Psychology and Aging, 2007



Löckenhoff & Carstensen, *Psychology and Aging*, 2007

If older adults focus on their feelings versus the information when making decisions, will they make better choices?

HealthNow: dental care
is fully covered

... query

HealthNow: routine
exams are not covered

... query

CareNet: prescription
drugs are fully covered

... query

CareNet: physical
therapy is covered

... query

Time

Choice

HealthNow: dental care is fully covered

... query

HealthNow: routine exams are not covered

... query

CareNet: prescription drugs are fully covered

... query

CareNet: physical therapy is covered

... query

Time

Choice

HealthNow: dental care is fully covered

... query

HealthNow: routine exams are not covered

... query

CareNet: prescription drugs are fully covered

... query

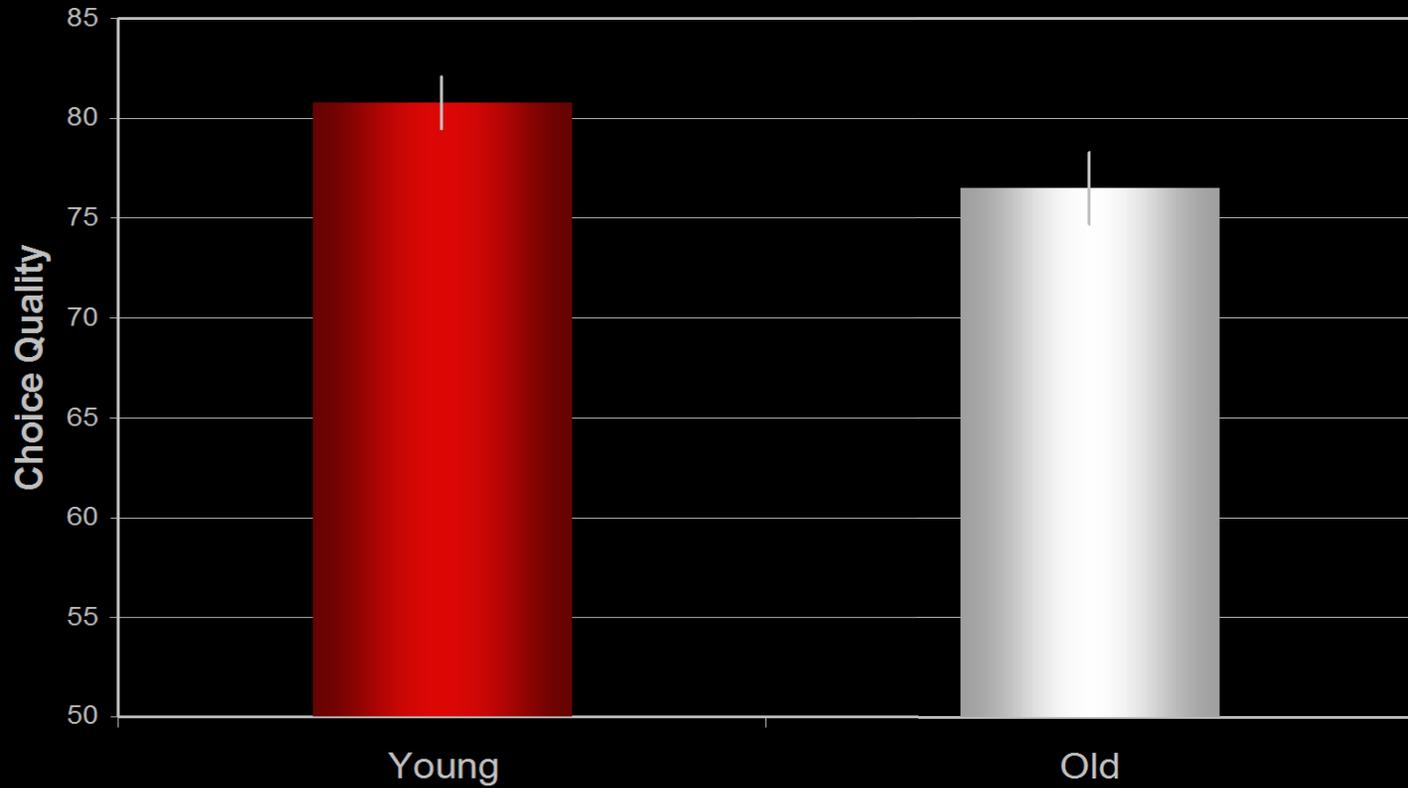
CareNet: physical therapy is covered

... query

Time

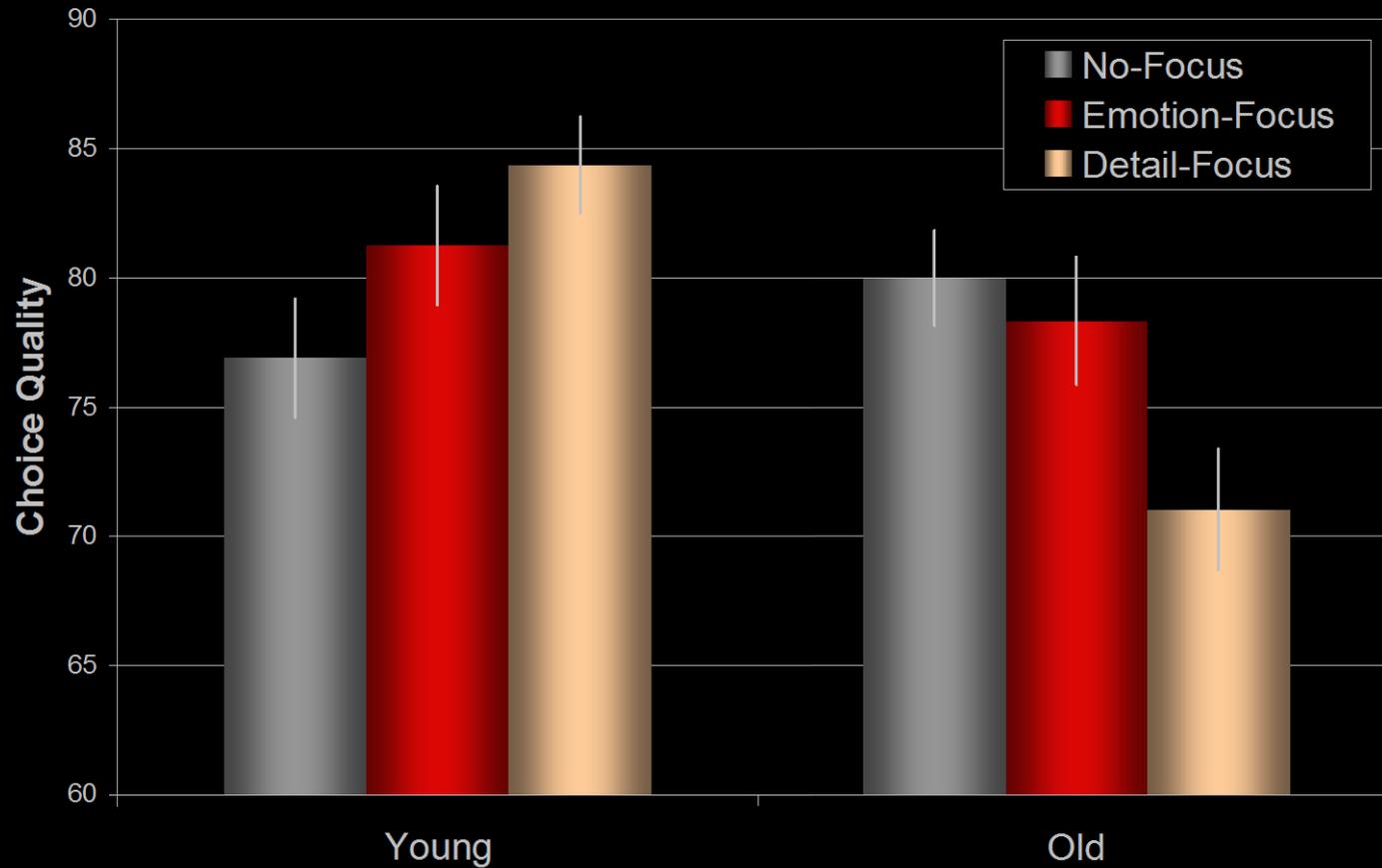
Choice

Choice Quality



■ Main Effect of Age: $F(1, 114) = 5.49, p < .05$

Choice Quality



■ Age by Condition Interaction: $F(1, 114) = 6.62, p < .005$

Does the positivity effect
influence **learning**
to seek gains and avoid
losses?



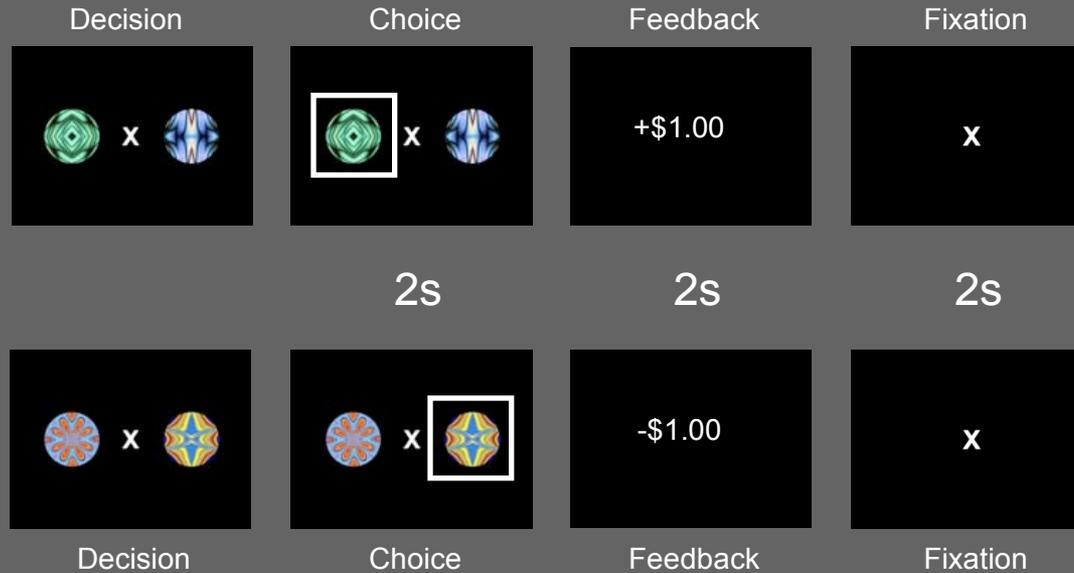
Optimal Cue

.66 +\$1.00
.33 +\$0.00

Non-optimal Cue

.33 +\$1.00
.66 +\$0.00

Gain Trial



Loss Avoidance Trial

Optimal Cue

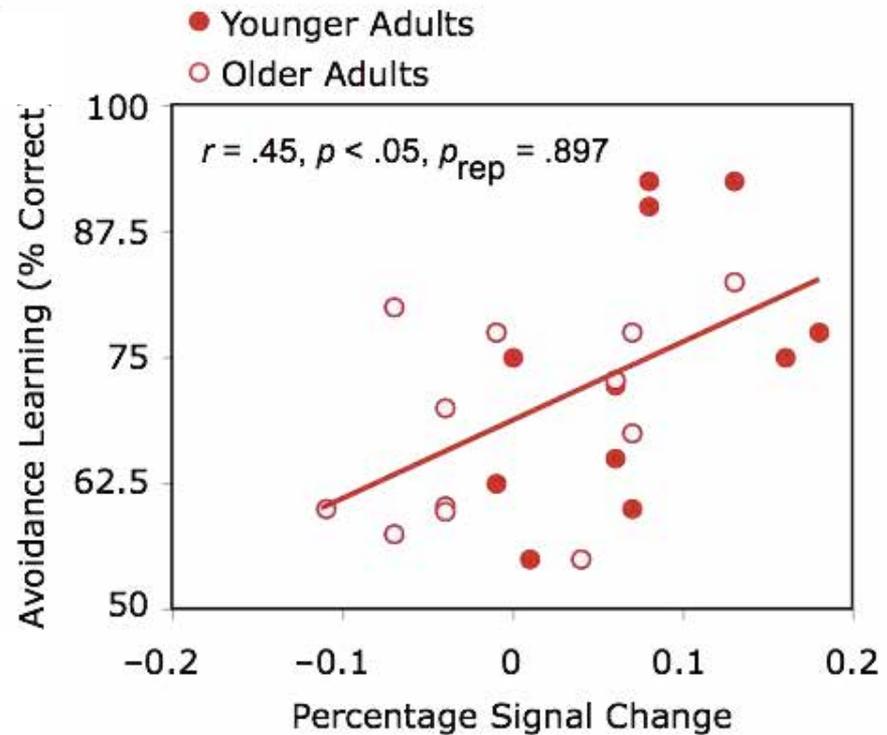
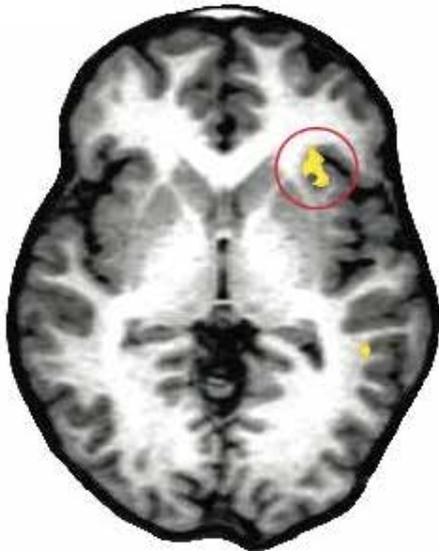
.66 -\$0.00
.33 -\$1.00

Non-optimal Cue

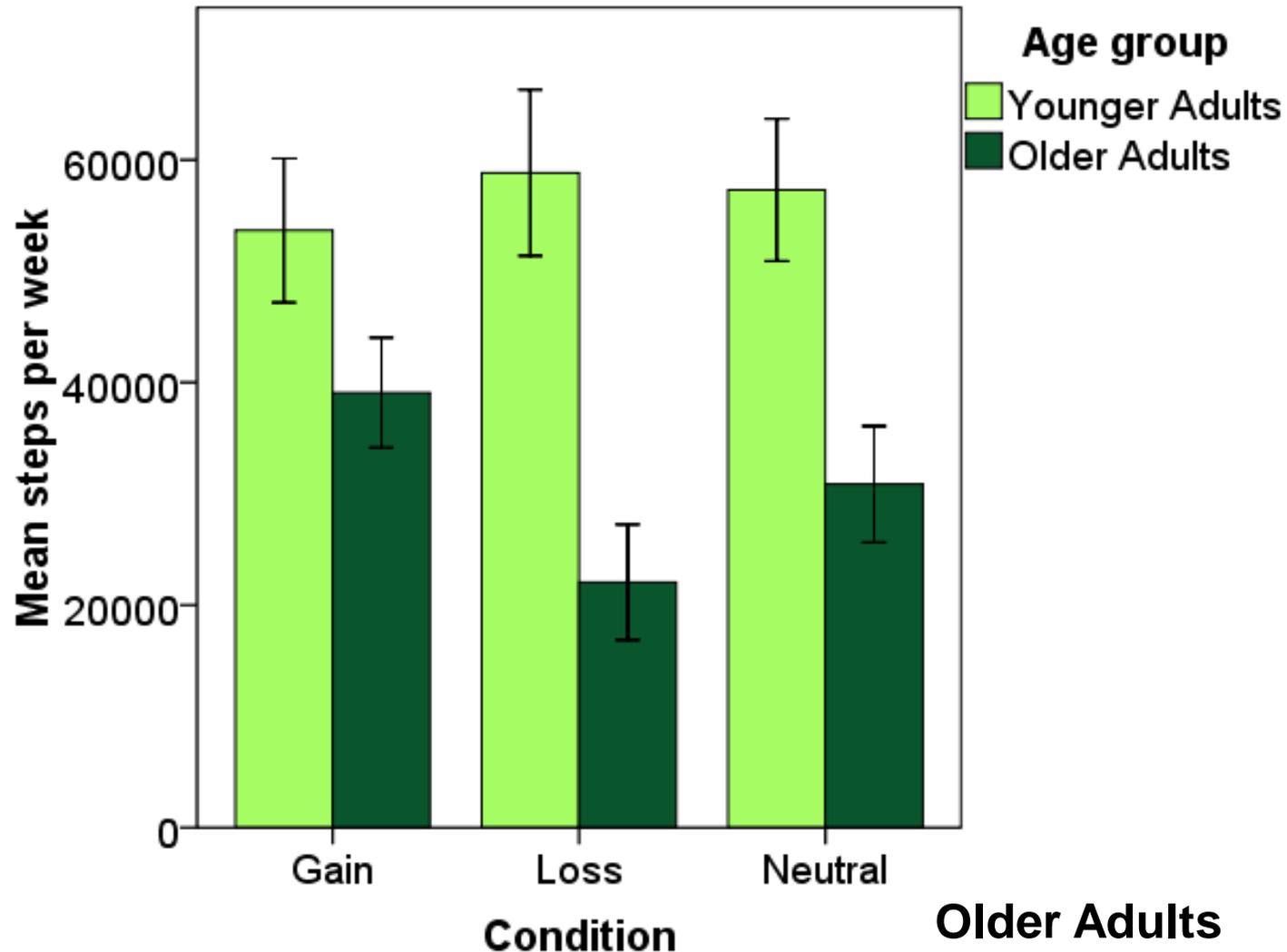
.33 -\$0.00
.66 -\$1.00

Anticipation & Learning

Correlation



Using Message Framing for Health Behavior Promotion



Error bars: +/- 1 SE

Older Adults

Pos > Neg & Neu (p=0.036)

Pos > Neg (p=0.023)



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