

Taking Control of Cognitive Aging: Psychosocial and Behavioral Factors



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Collaborators and Support

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MacArthur Foundation (MIDUS I)***

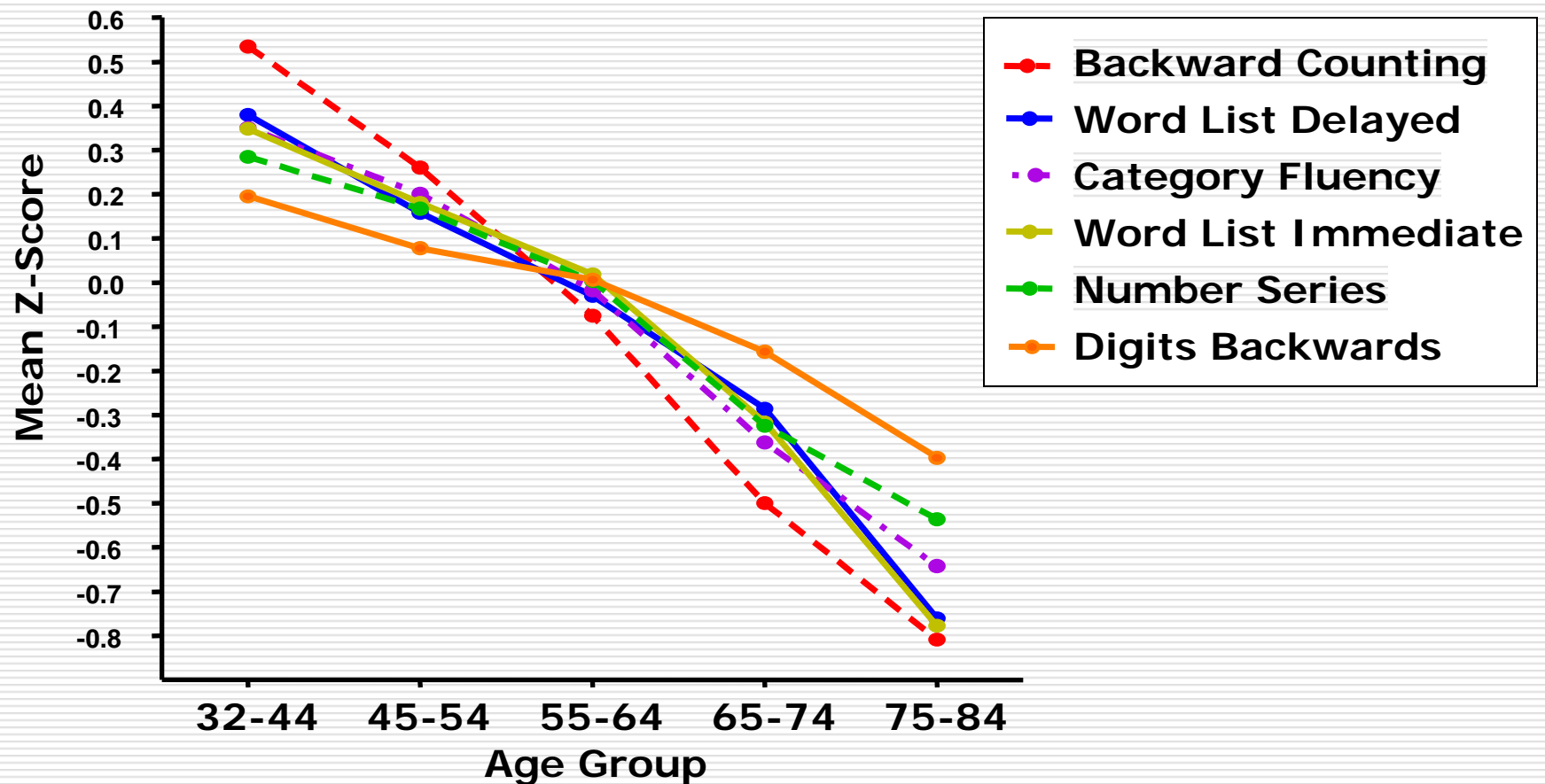
NIA AG17920

NIA PO1 AG20166 (MIDUS II)

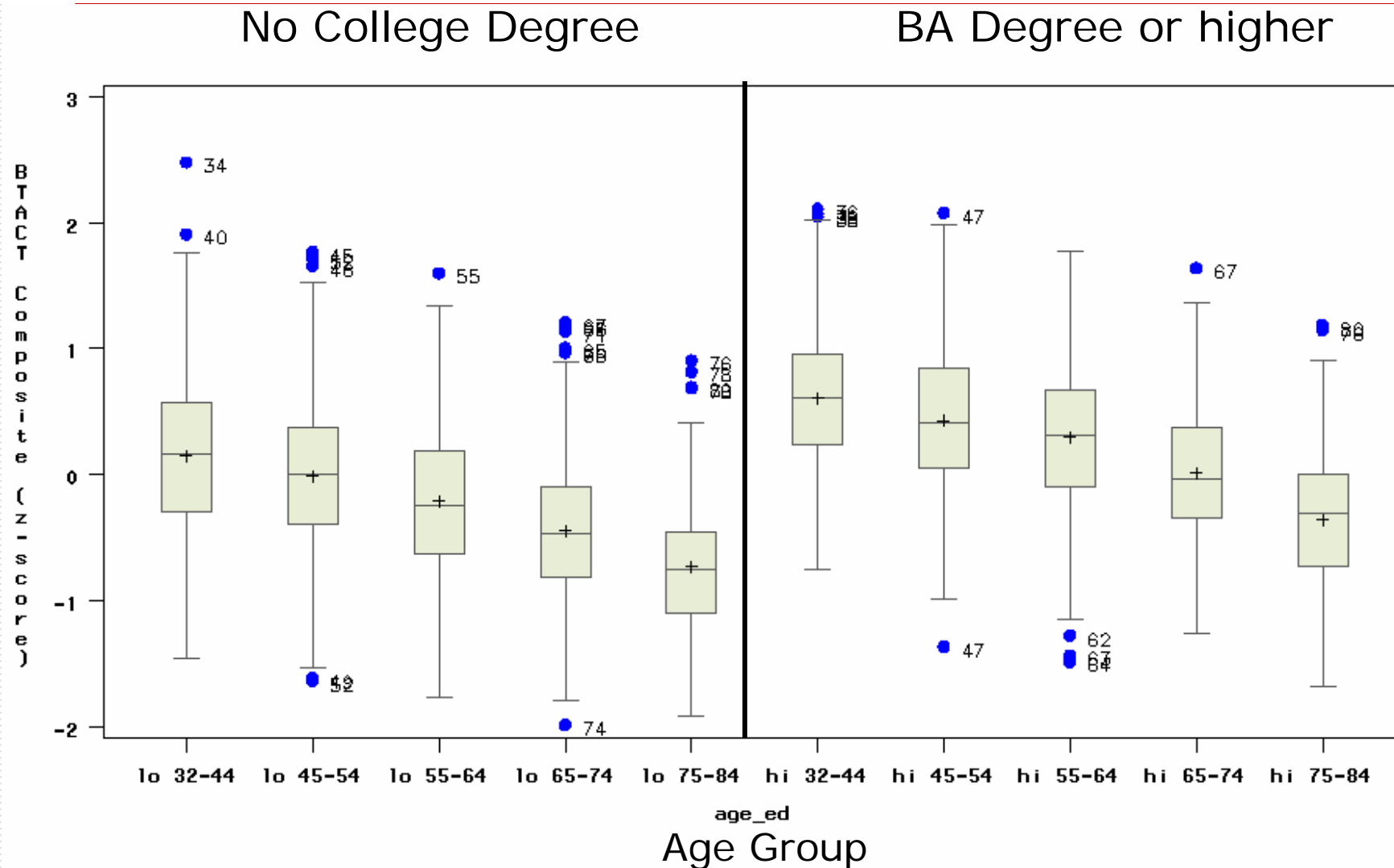
Overview

- Variation in cognition by age and education (MIDUS II data)
 - Beliefs matter- Sense of control
 - Psychosocial and behavioral moderators
 - Anxiety
 - Cognitive Activity
 - Conclusions and future directions
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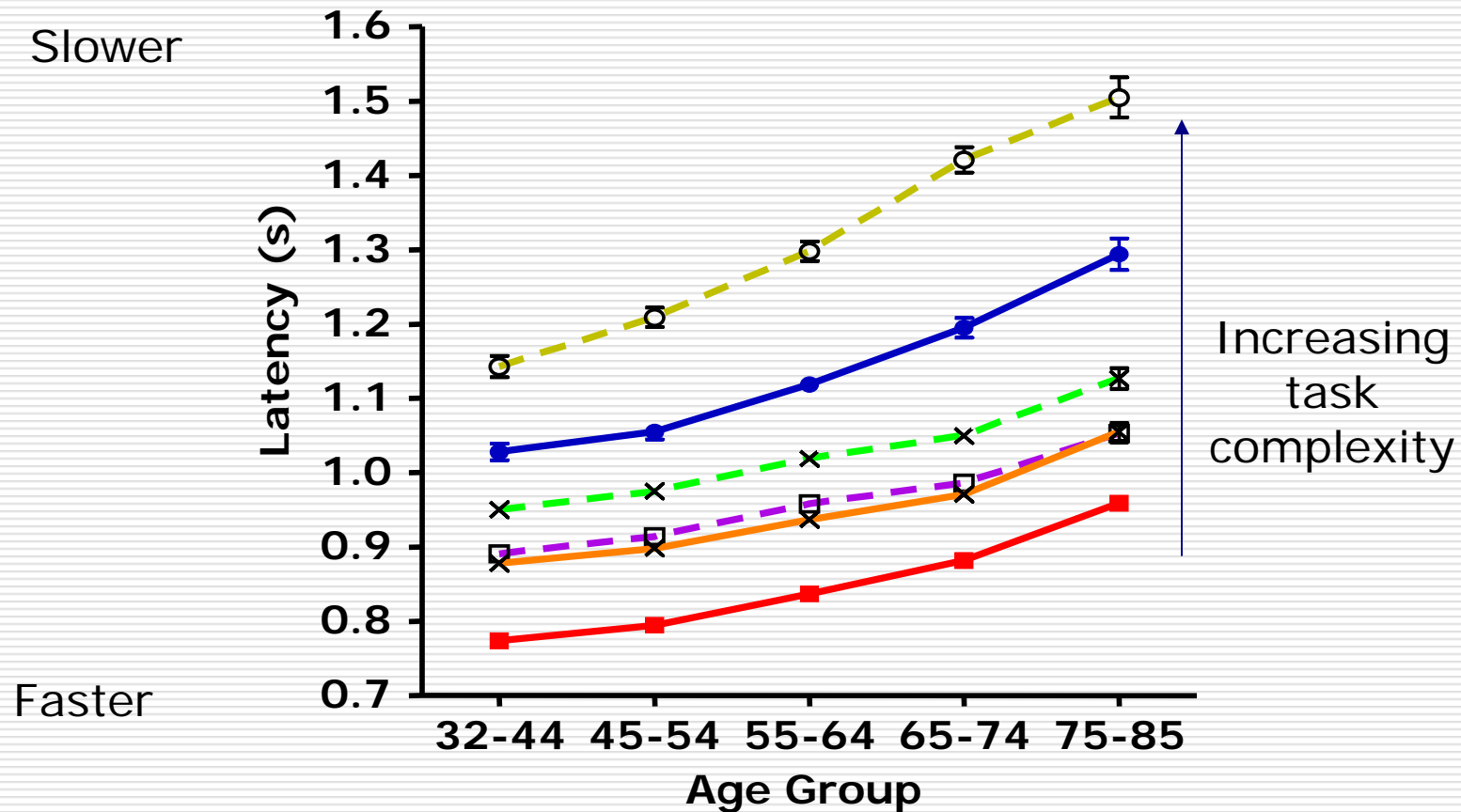
Lower Performance on Multiple Cognitive Tests (BTACT) with Age: MIDUS II National Sample (N=4705)



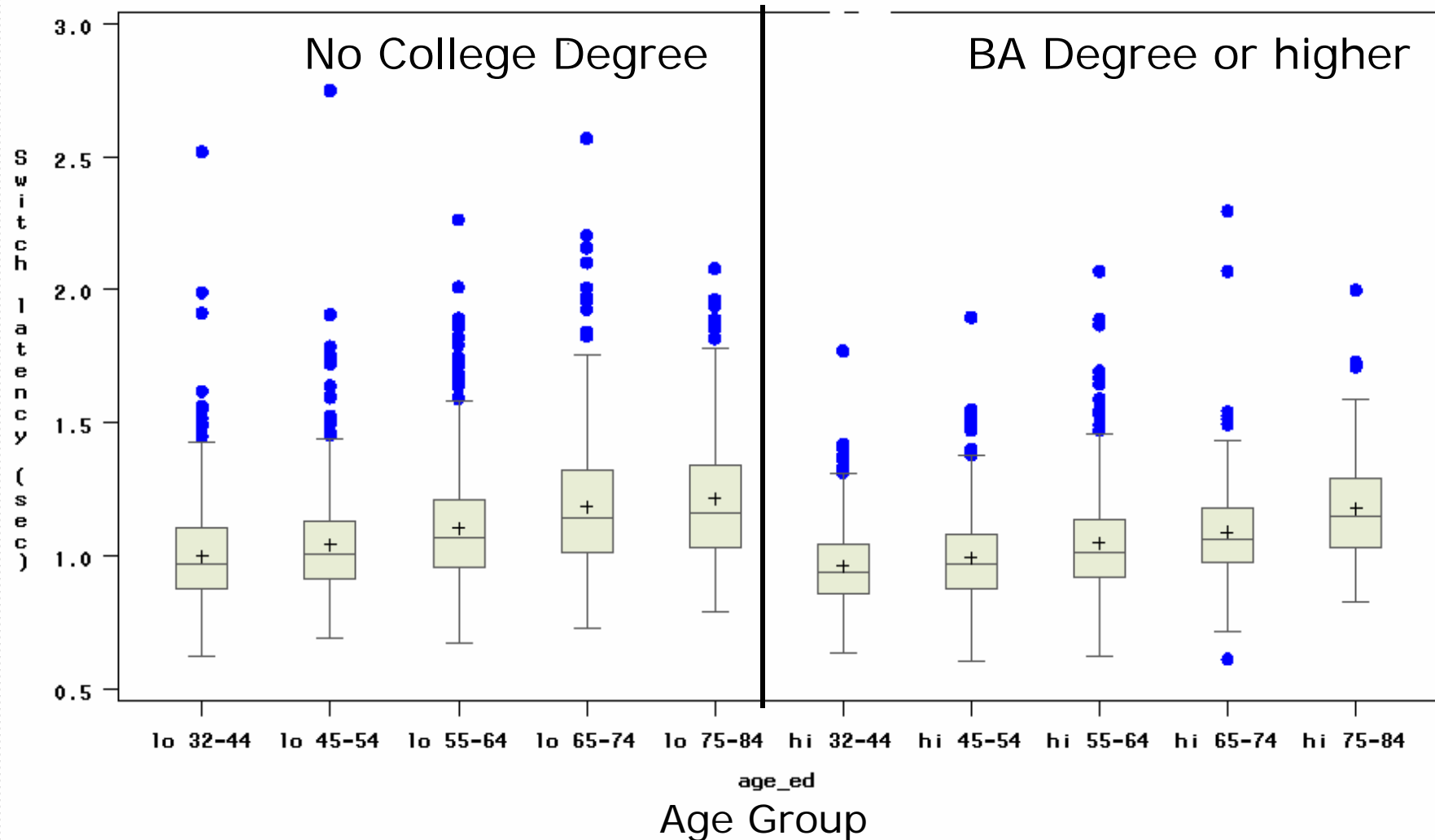
Variability within Age and Education for MIDUS II Cognitive Mechanics Composite Measure



Reaction Time Increases Across Age Groups and Task Complexity- MIDUS II Stop and Go Switch Task



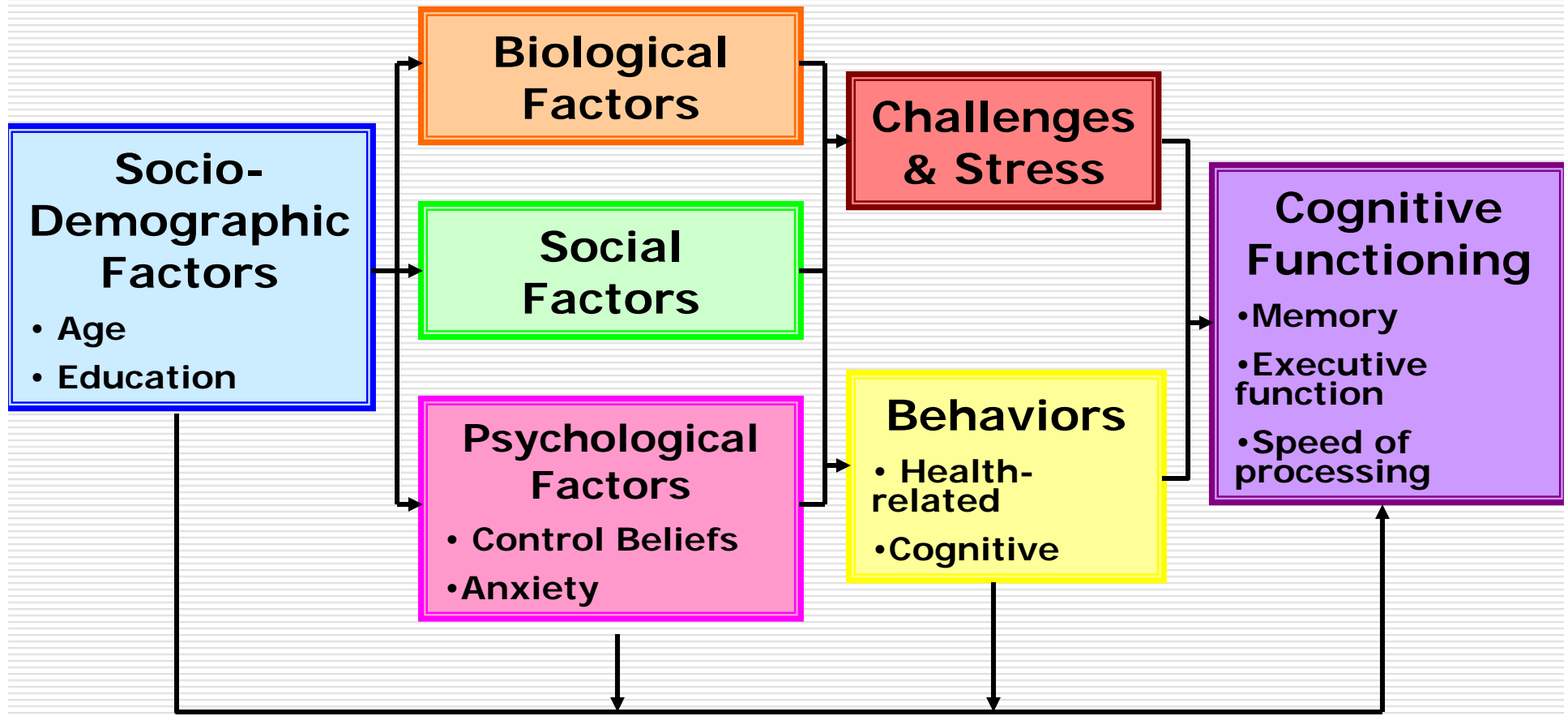
Variability in Reaction Time Within Age and Education for MIDUS II Switch Task



Moderators of Age and Education Differences in Cognition

- Identify modifiable factors
 - Attenuate age differences
 - Reduce education disparities
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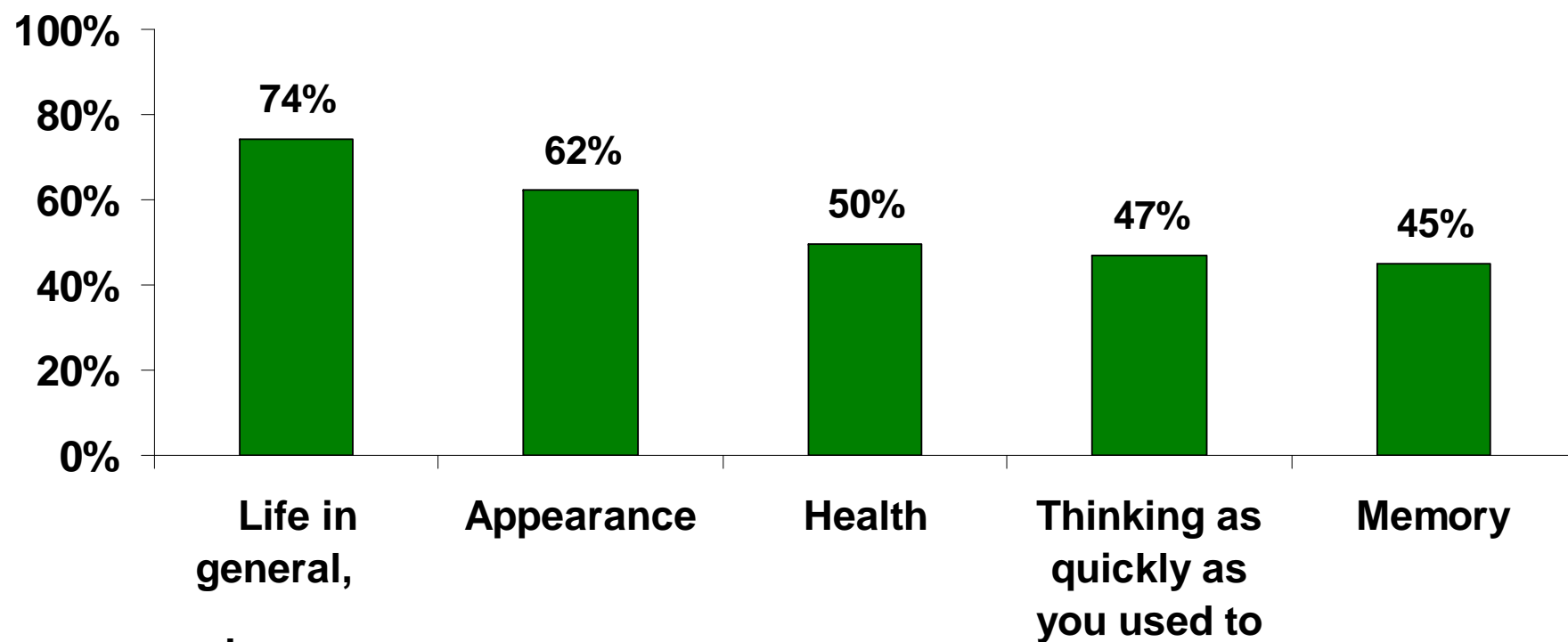
Guiding Conceptual Model: Biopsychosocial Pathways to Healthy Cognitive Aging



Expectancies about Aging and Beliefs about Control Make a Difference

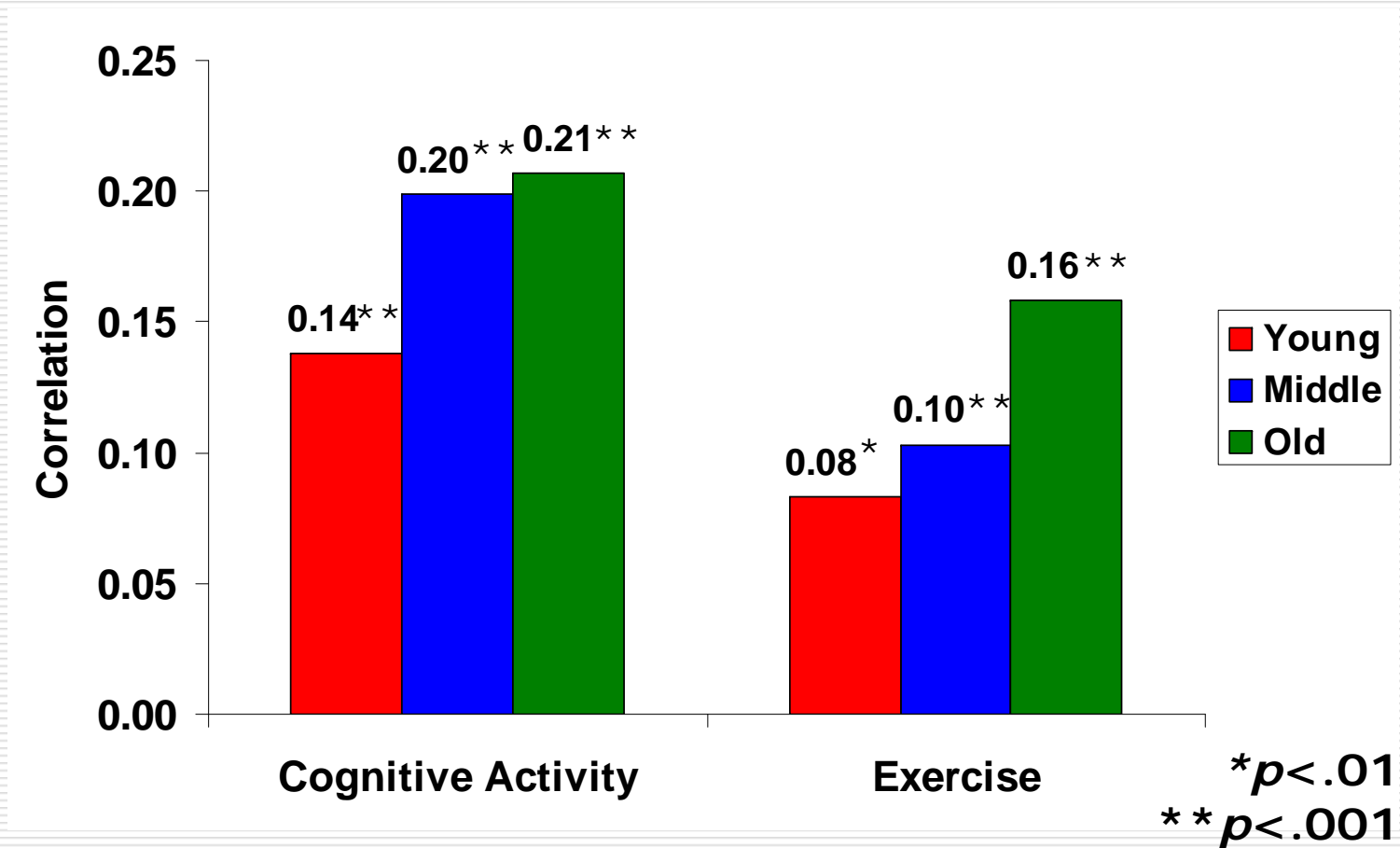
- Beliefs, misconceptions, and stereotypes about aging matter for performance outcomes (e.g., Levy, 2003)
 - A low sense of control is a risk factor for poor aging-related outcomes (Caplan & Schooler, 2003; Krause, 2007; Lachman, 2006; Mirowsky, 1995; Rowe and Kahn, 1998)
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Control Beliefs: Percent Reporting "A Lot of Control" Varies by Domain

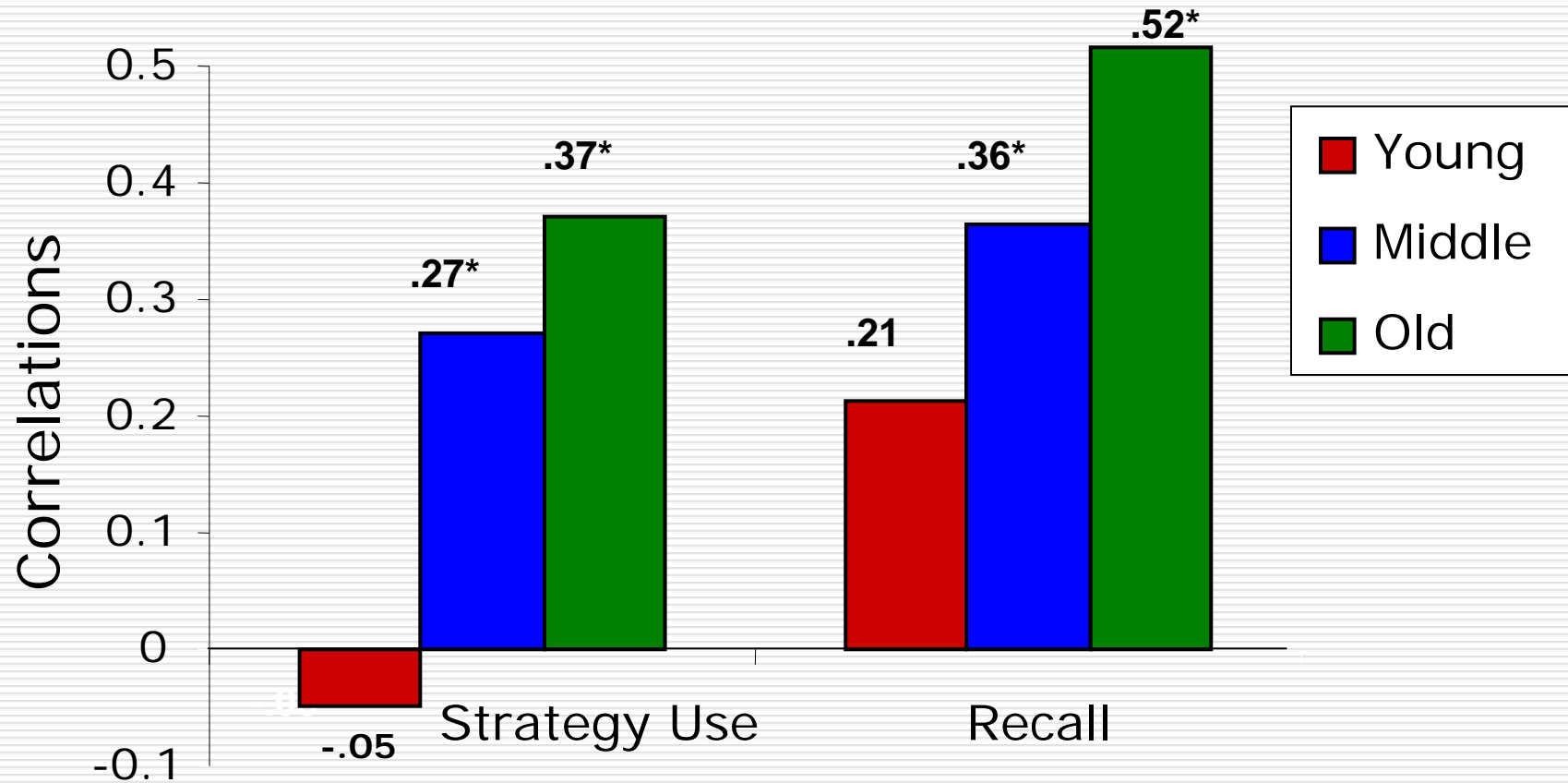


From MIDUS II National and Boston-Area Samples

Correlations by Age: Higher Control Beliefs Associated with More Frequent Cognitive and Physical Activity

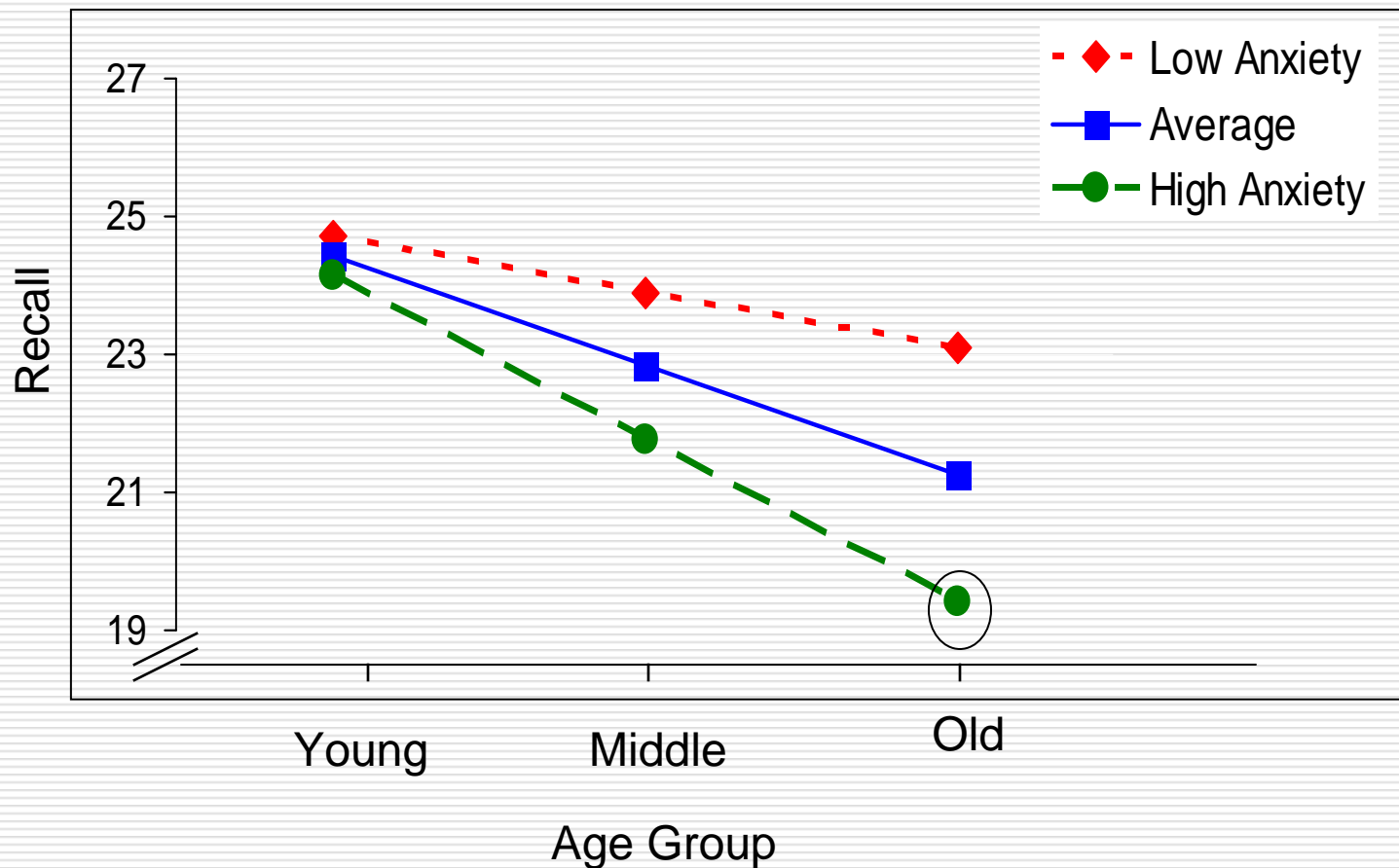


Correlations by Age: Higher Control Beliefs Associated with More Strategy Use and Better Recall



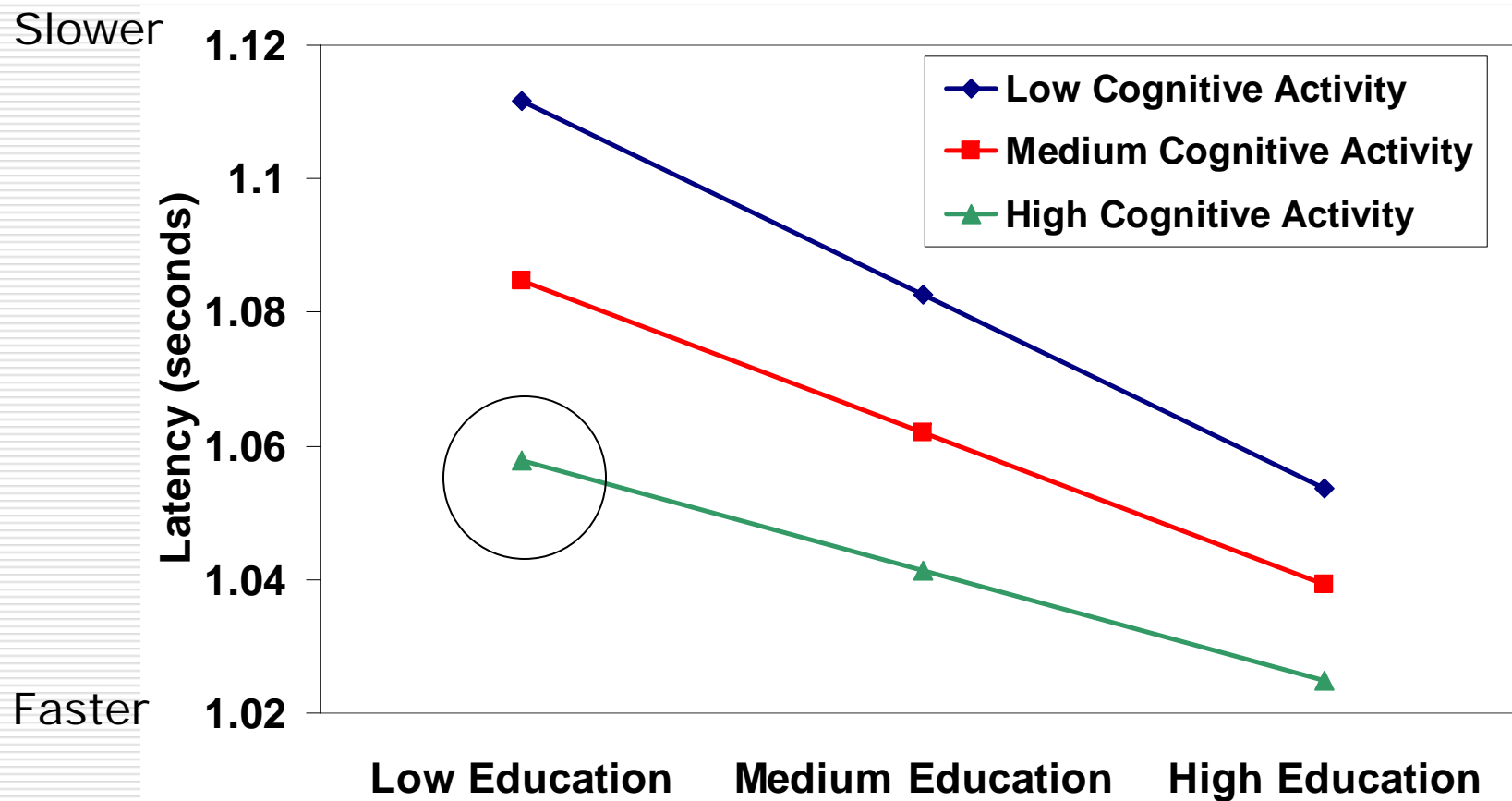
Lachman (2006)

Anxiety Moderates Age Differences in Recall: High Anxiety has a Damaging Effect on Recall for Older Adults



Andreoletti et al. (2006)

Cognitive Activity Moderates Education Effects on Switch Reaction Time: Cognitive Activity has Compensatory Effect for Low Education



Where do we go from here?

- Inspired by American Cancer Society message...
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Take Control of Your Health (American Cancer Society)

Studies show that at least two-thirds of cancer deaths can be prevented by:

- Not using tobacco products
- Maintaining a health weight
- Getting plenty of physical activity
- Eating healthy foods
- Avoiding the midday sun and protecting skin from the sun

Treatment is most successful when cancer is detected early.

Can we apply this approach to cognitive aging?

What would our version look like?

- What are the likely recommendations based on current state of research?
- What further research is needed for us to be able to say?:

Studies show that cognitive declines can be reduced, delayed, or prevented by:

Take Control of Your Cognitive Aging?

Studies show that cognitive declines can be reduced, delayed, or prevented by:

- Getting a good education
- Reducing stress and anxiety
- Trying new and challenging activities
- Adopting a healthy lifestyle (e.g. exercise)
- Staying socially engaged

The effects are most beneficial when started early in adulthood

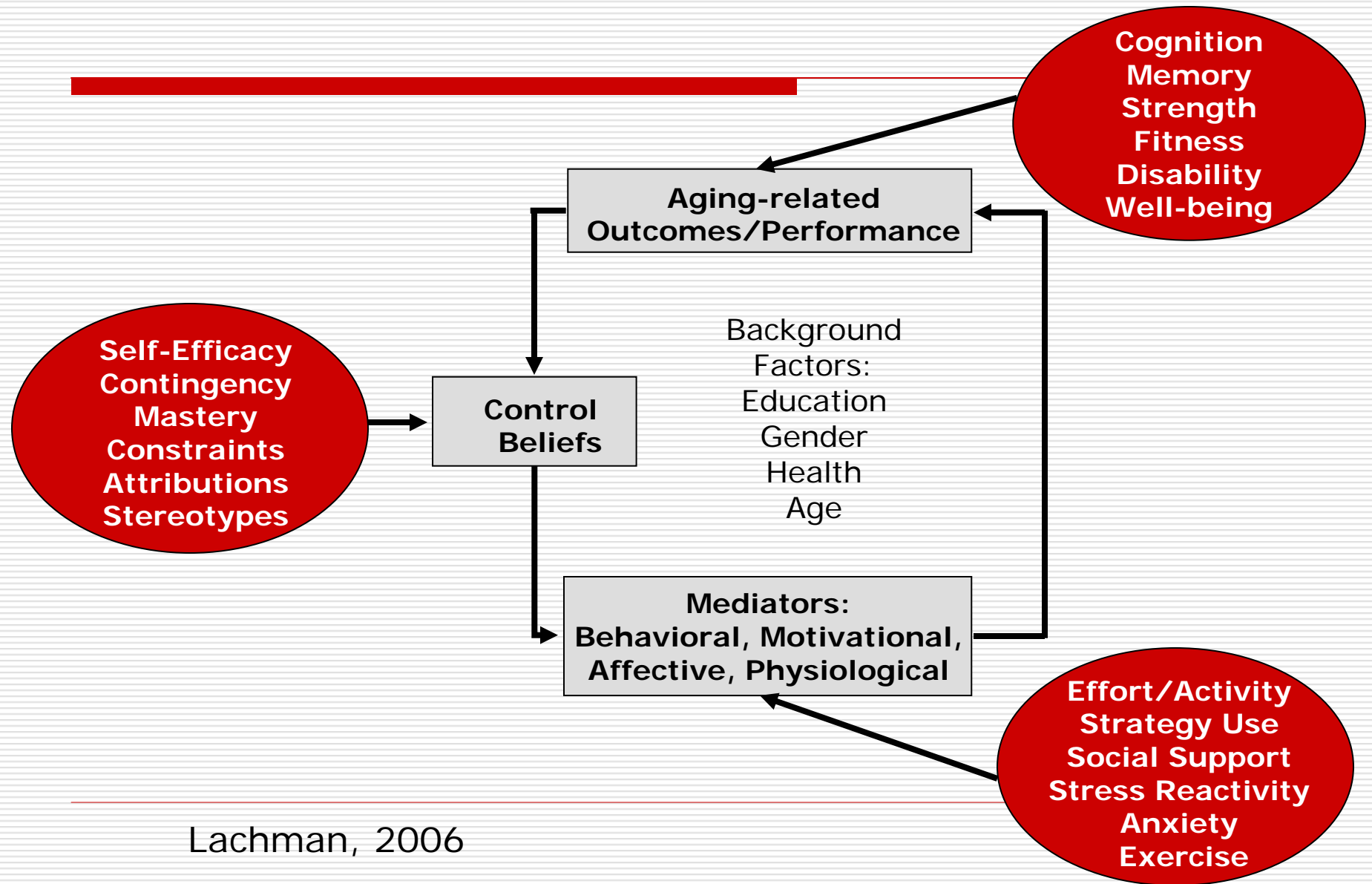
Conclusions and Future Directions

- ❑ Clarify directionality- experimental and longitudinal designs
 - ❑ Apply new methods for study of change
 - ❑ Integrate lab and survey techniques
 - ❑ Increase sample diversity
 - ❑ Focus on midlife and earlier adulthood
 - ❑ Multimodal interventions-examine mechanisms
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End of Ten Minute Presentation

Extra Slides for Notebook

Self-Regulatory Processes and Aging



Lachman, 2006

MIDUS Study



- ❑ MIDMAC- MacArthur Foundation Research Network on Successful Midlife Development Midlife in the U.S. (MIDUS I)- 1995-96
- ❑ National Institute on Aging- Integrative Pathways to Health and Illness (MIDUS II), Program Project based at University of Wisconsin- 2004-06

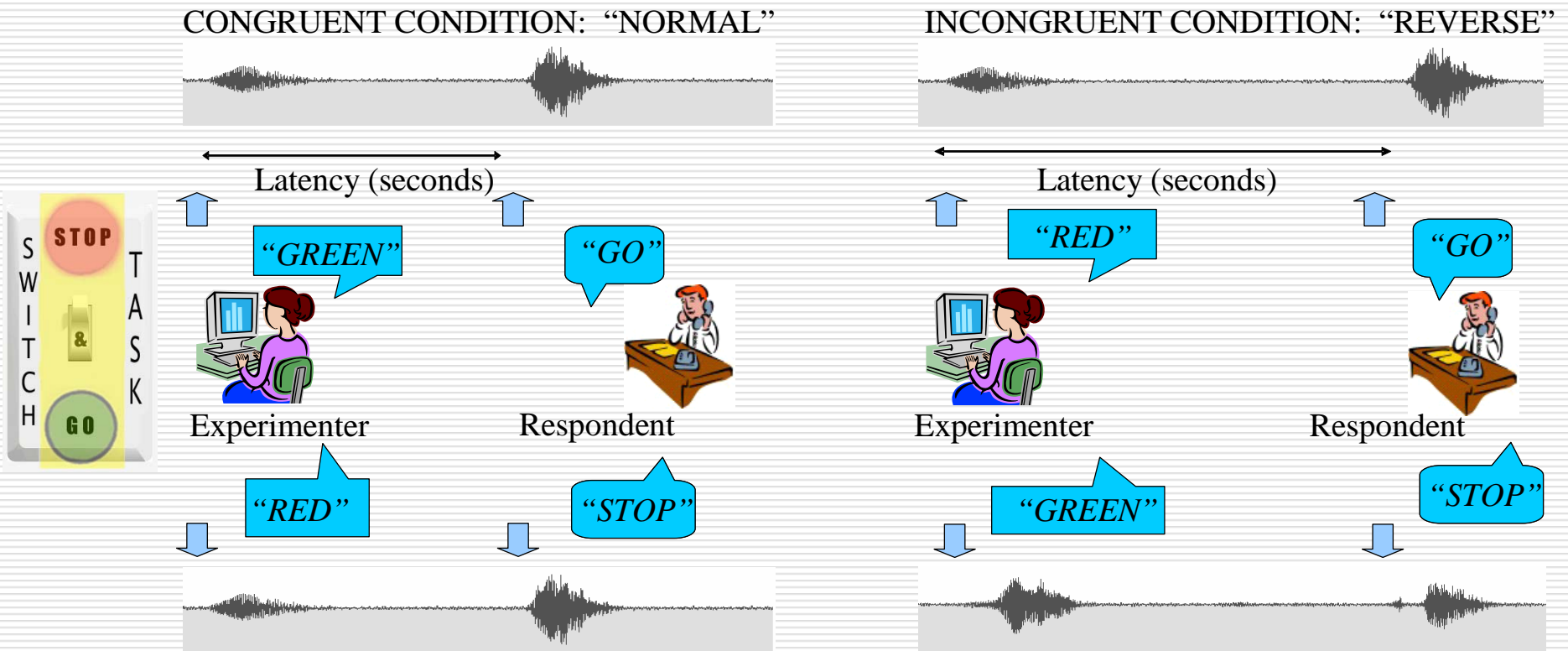
Time 1: Ages- 24-75 (N=7020)

Time 2: Ages- 34-85 (N=4942)

MIDUS II Telephone Cognitive Battery (BTACT) Lachman & Tun, in press

Task	Theoretical Construct(s)	Test Used
Word List Recall (immediate and delayed)	Episodic verbal memory	Free recall of a list of 15 words drawn from the Rey Auditory-Verbal Learning Test (Rey, 1964; Lezak, 1995)
Backward Digit Span	Working memory span	Highest span achieved in repeating strings of digits backwards (Wechsler, 1997)
Category Fluency	Verbal fluency: Executive function, semantic memory retrieval	Number of animal names produced in one minute (after Borkowski, Benton & Spreen, 1967; see also Tombaugh, Kozak, & Rees, 1999)
Number Series	Inductive reasoning	Complete the pattern in a series of 5 numbers with a final number (eg. 2, 4, 6, 8, 10... 12). Five problems include 3 types of patterns. (After Schaie, 1996; Salthouse & Prill, 1987)
Backward Counting	Processing speed	Maximum number of items produced counting backwards from 100 in 30 seconds (after AHEAD study: Herzog & Wallace, 1997)
Attention-Switching (Stop and Go Task)	Reaction time, attention, task-switching, inhibition	Speeded two-choice response, either: 1.blocked (in baseline), or 2.alternating tasks (task-switching) (after Cepeda, Kramer, & Gonzalez de Sather, 2001)

MIDUS II Stop & Go Switch Task: Reaction Time and Switching by Telephone



References

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