Processing Speed Mediates Age Cohort and Prospective Memory Performance

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Introduction

Prospective memory (PM)

- The ability to remember to carry out future intentions
- Decline with age (Lecouvey et al., 2017)

Processing speed (PS)

- Ability to perform mental operations quickly
- Older adults have more trouble encoding information in PM tasks (Zeintl et al., 2007; Salthouse et al., 2004)

Method

Participants:

Young adults (YAs): n = 40; ages 18 – 26
(M = 18.85, SD = 1.59)
Older adults (OAs): n = 52; ages 49 – 90
(M = 73.36, SD = 8.88)

- Dummy coded age variable: YAs = 0, OAs = 1

Measures/Materials:

- WAIS-IV Coding Subtest: measured PS
- Virtual Kitchen Protocol for Prospective Memory: measured PM in virtual reality (VR) and analog tasks

References

Lecouvey, G., Gonneaud, J., Piolino, P., Madeleine, S., Orriols, E., Fleury, P., Eustache, F., & Desgranges, B. (2017). Is binding decline the main source of the ageing effect on prospective memory? A ride in a virtual town. *Socioaffective Neuroscience & Psychology, 7*, 1–16. https://doi.org/10.1080/20009011.2017.1304610

Salthouse, T. A., Berish, D. E., & Siedlecki, K. L. (2004). Construct validity and age sensitivity of prospective memory. *Memory & Cognition, 32*(7), 1133–1148. https://doi.org/10.3758/bf03196887a

Zeintl, M., Kliegel, M. & Hofer, S. M. (2007). The role of processing resources in age-related prospective and retrospective memory within old age. *Psychology and Aging, 22*(4), 826–834. https://doi.org/10.1037/0882-7974.22.4.826

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Hypothesis

Processing speed will mediate the relationship between age cohort and prospective memory in analog and virtual reality.

Findings

Figure 1. ***Analog Prospective Memory***

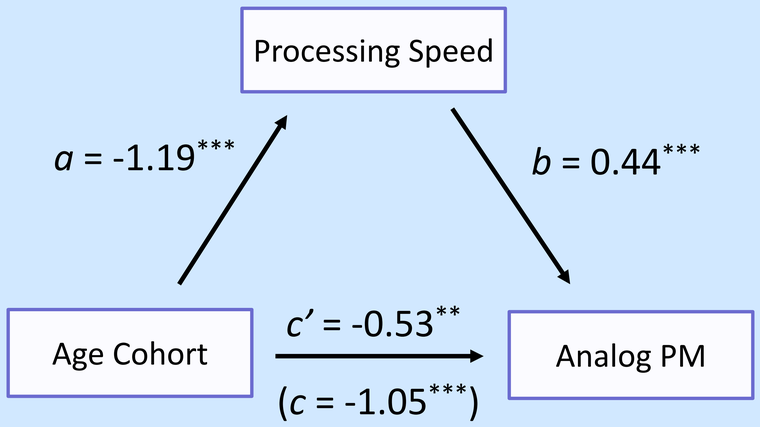
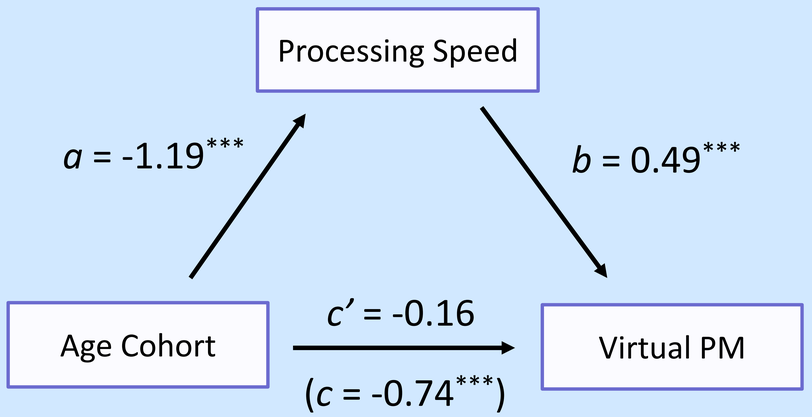


Figure 2. ***Virtual Reality Prospective Memory***



- The age cohort and prospective memory (PM) relationship was mediated by processing speed both in and out of virtual reality.
- Partial mediation was observed in analog-based PM, whereas full mediation was observed in virtual reality-based PM.
- Older adults' poorer PM performance was explained by their slower processing speed.

$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$; All presented effects are standardized.