



Imagine Breaking Up Your Sitting

Reducing Sedentary Behavior in Older Adults: A Full Factorial Randomized Trial

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1 Background

- ▶ Older adults: highly sedentary (~ 9.4 h/day)¹
- ▶ Guidelines: replace sedentary time with physical activity of any intensity²
- ▶ Mixed evidence for action planning in older adults^{3, 4}
- ▶ Mental imagery may enhance effects of action planning via self-efficacy, outcome expectancy, outcome experience, and automaticity⁵⁻⁹

Research Questions

- ▶ Does mental imagery (IMAGERY) enhance the effect of action planning (PLANNING) on sedentary time in older adults?
- ▶ Does IMAGERY enhance the effect of PLANNING on self-efficacy, outcome expectancy, outcome experience, and automaticity?
- ▶ Does imagery ability moderate intervention effects?

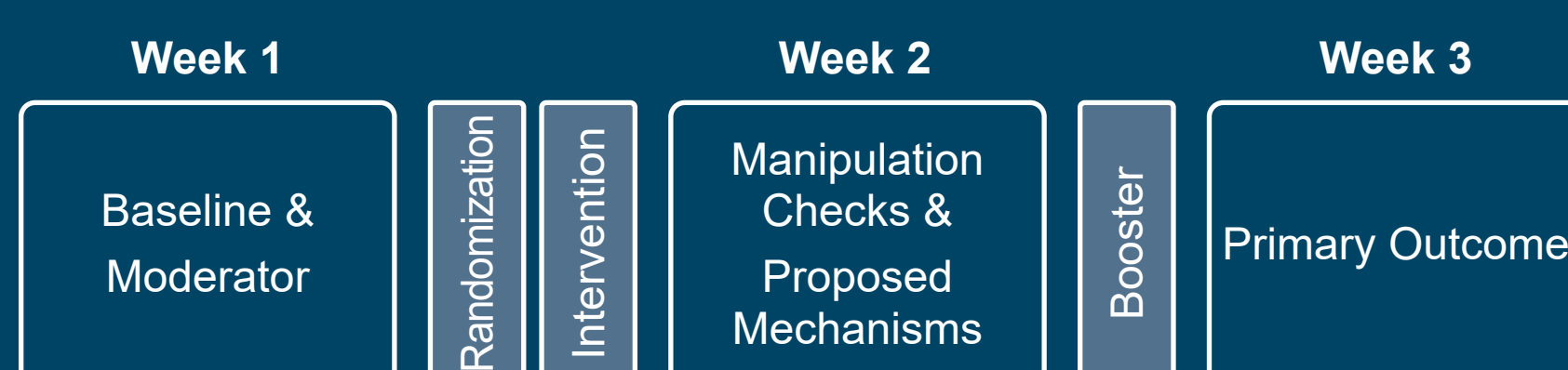
2 Methods

Sample

- ▶ N = 160 community-dwelling adults
- ▶ Age: 70-94 years (M = 77 years)
- ▶ 52% women

Study Design

- ▶ 21-days 2x2 full factorial randomized trial:



Intervention

- ▶ Day 8: One-to-one intervention targeting two sitting habits with participants randomized (1:1:1:1) to:
 1. goal setting
 2. goal setting + PLANNING
 3. goal setting + IMAGERY
 4. goal setting + PLANNING + IMAGERY
- ▶ Day 15: Booster e-mail targeting a third sitting habit

Measures

- ▶ Primary outcome: sedentary time (accelerometer ActiGraph GT3x+)
- ▶ Manipulation checks: action planning, process simulation, outcome simulation (self-report)
- ▶ Proposed mechanisms: self-efficacy, outcome expectancy, outcome experience, automaticity (self-report)
- ▶ Moderator: imagery ability¹⁰ (self-report)

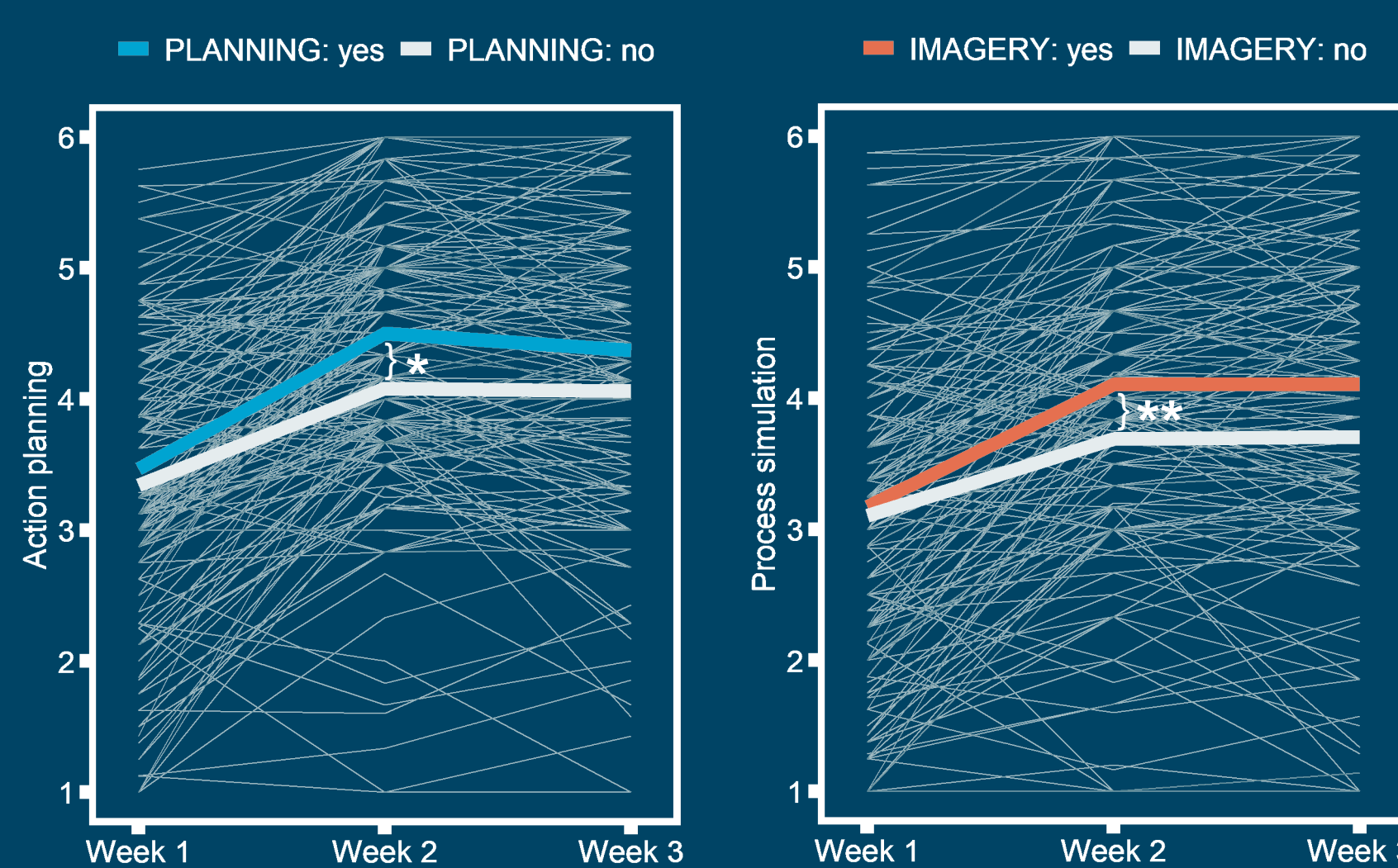
Analyses

- ▶ Manifest path models testing effects of PLANNING, IMAGERY and PLANNING × IMAGERY using *lavaan* in R^{11, 12}

3 Results

A | Manipulation Checks

- ▶ PLANNING manipulation successful
- ▶ IMAGERY manipulation largely successful

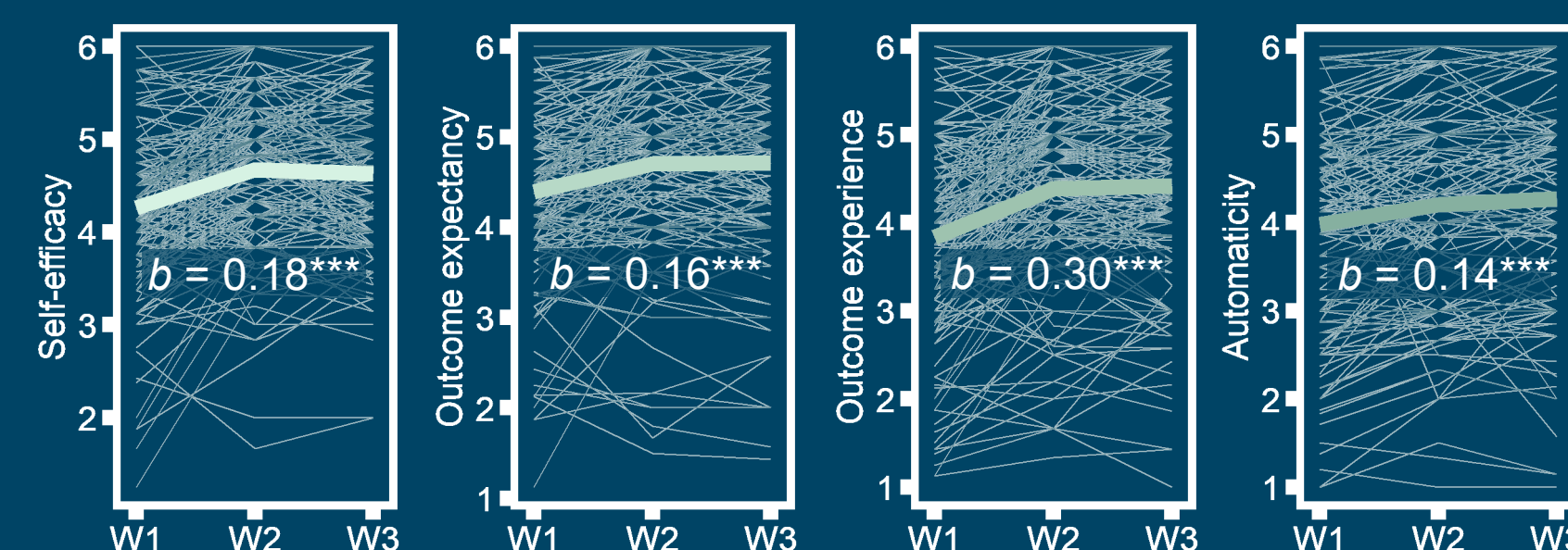


Note. N = 160. Descriptive trajectories are shown. In the manifest path model including PLANNING, IMAGERY, and PLANNING × IMAGERY, PLANNING predicted higher action planning at Week 2, $b = 0.14^*$, $SE = 0.07$, adjusted for baseline action planning, sex, age, BMI, and comorbidities. $^*p < .05$

Note. N = 160. Descriptive trajectories are shown. In manifest path models including PLANNING, IMAGERY, and PLANNING × IMAGERY, IMAGERY predicted higher process simulation at Week 2, $b = 0.19^{**}$, $SE = 0.06$, but not outcome simulation, adjusted for baseline measures, sex, age, BMI, and comorbidities. $^{**}p < .01$

C | Effects on Proposed Mechanisms

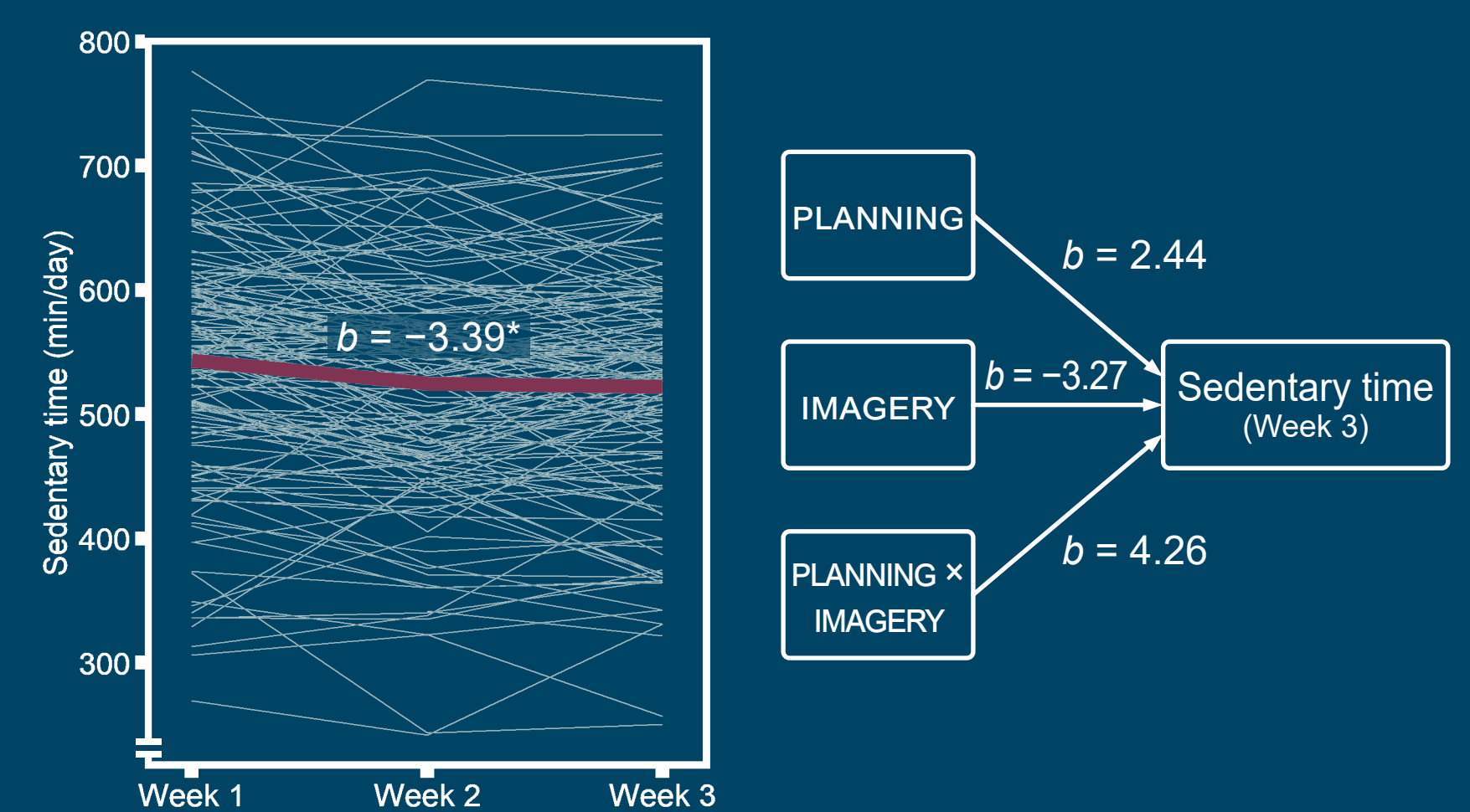
- ▶ Post-intervention increases in self-efficacy, outcome expectancy, outcome experience and automaticity
- ▶ Increases not attributable to PLANNING, IMAGERY OR PLANNING × IMAGERY



Note. N = 160. Descriptive trajectories are shown. b values represent weekly time trends estimated from multilevel models adjusted for sex, age, BMI and comorbidities. Manifest path models predicting the proposed mechanisms at Week 2 from PLANNING, IMAGERY, and PLANNING × IMAGERY, adjusted for baseline measures, sex, age, BMI, and comorbidities, revealed no significant intervention effects. W = Week. $^{***}p < .001$

B | Effects on Sedentary Time

- ▶ Post-intervention decreases in sedentary time
- ▶ Decreases not attributable to PLANNING, IMAGERY OR PLANNING × IMAGERY

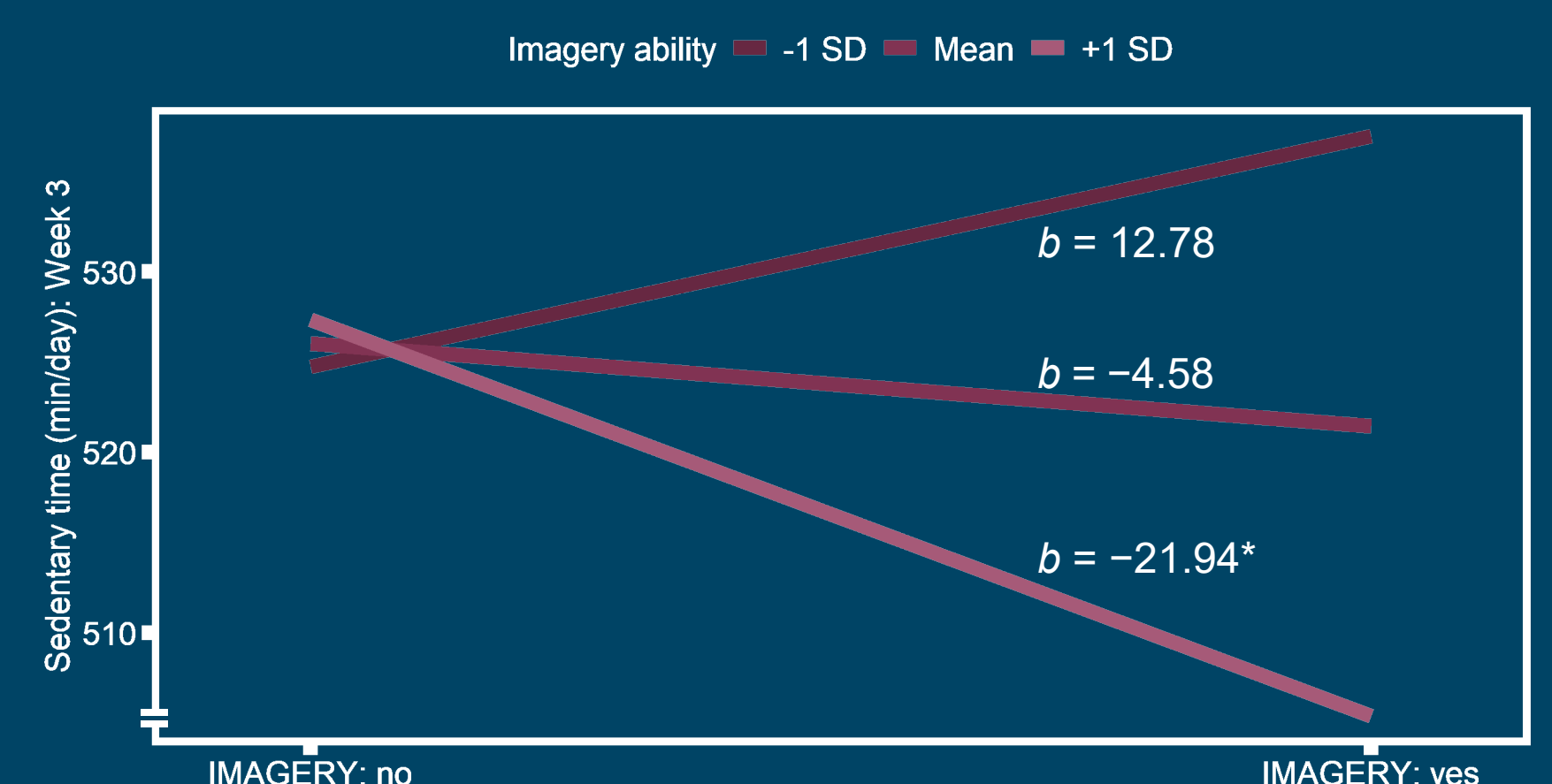


Note. N = 160. Descriptive trajectories are shown. b represents the weekly time trend estimated from a multilevel model adjusted for wear time, sex, age, BMI, and comorbidities. $^*p < .05$

Note. N = 160. Manifest path model adjusted for baseline sedentary time, wear time at Week 3, sex, age, BMI, and comorbidities. All displayed paths (b) were non-significant ($p > .05$). Intercept: $b = 522.65$, $SE = 3.50$, $p < .001$.

D | Moderation by Imagery Ability

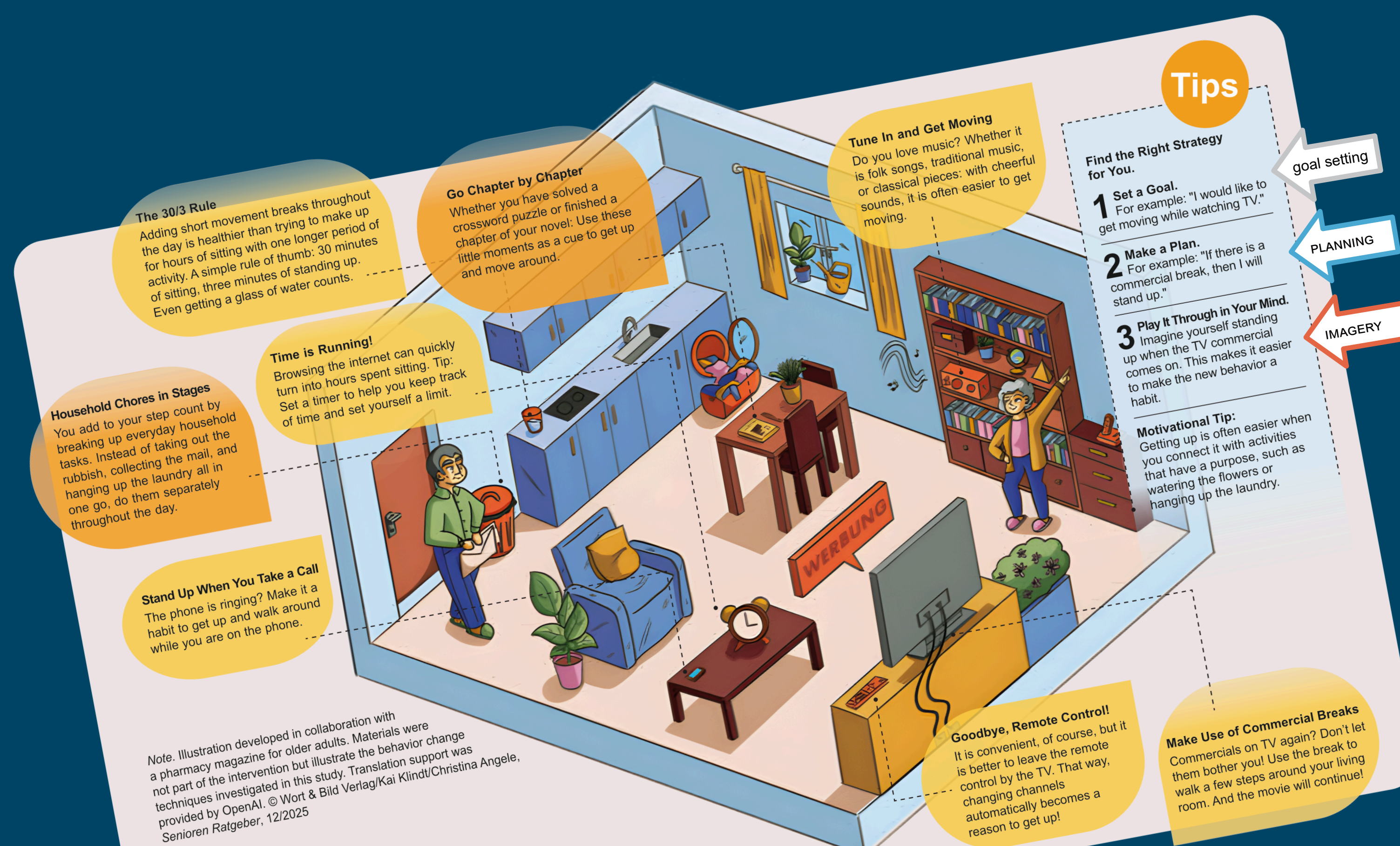
- ▶ IMAGERY effectively reduced sedentary time in individuals with higher imagery ability



Note. N = 160. Simple slopes were estimated from a manifest path model predicting sedentary time at Week 3 adjusted for baseline sedentary time, wear time at Week 3, sex, age, BMI, and comorbidities. Predictors included PLANNING, IMAGERY, imagery ability, and their interactions. A significant IMAGERY × imagery ability interaction emerged, $b = -9.06^*$, $SE = 3.80$; all other interactions were non-significant. $^*p < .05$

4 Conclusions

- ▶ IMAGERY did not enhance the effect of PLANNING on sedentary behavior in older adults.
- ▶ Sedentary time decreased across all participants, highlighting the potential role of goal setting as an active intervention component that warrants further investigation.
- ▶ Imagery ability may represent a boundary condition for IMAGERY-interventions, suggesting that tailored support (e.g., preparatory exercises or virtual reality) may benefit individuals with lower imagery ability.



Poster & References:

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