### Background

- Cognitive interference, either internal (e.g., rumination) or external (e.g., distraction), can reduce ability to inhibit irrelevant information and can disrupt cognitive functioning processes (Clapp & Gazzale, 2010).
- Previous research mainly conducted in lab-based settings and examining between-person differences rather than within-person fluctuations in everyday life.
- Within-person research found cognitive interference negatively correlated with lab-based cognitive performance (Stawski, Sliwnski, & Smyth, 2006; Stawski, Sliwnski, & Smyth, 2010) among older adults, although not known whether negative effects of cognitive interference occur earlier in adulthood.
- We investigated the role of internal sources of interference (i.e., intrusive thinking and multitasking) in everyday life in relation to daily cognition (self-reports and cognitive performance), and the moderating role of age across the adult lifespan.

### Current Study

#### Research Questions and Predictions

1. Do internal sources of interference (intrusive thinking and multitasking) affect cognition in daily life? We hypothesized that greater cognitive interference would be associated with worse daily cognition.

2. Is age a moderator of the relationship between cognitive interference and daily cognition? We predicted that cognitive interference would have a more detrimental effect for older adults compared to younger adults.

### Methods

#### Daily Experiences and Memory Study

**Participants**
- N = 122
- Age (M = 50.5, SD = 20.0), education (M = 15.5 years, SD = 2.4), 57% female, 50% working

### Results

**Data Analysis**

- Covariates: diary day, age, gender, education, working status, average busyness.
- Within-person relationship between daily cognitive interference (intrusive thinking and multitasking) and daily cognition.
- Age as a moderator of the within-person relationship between cognitive interference and daily cognition.

#### Table 1

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Category fluency, Est. (SE)</th>
<th>Immediate word recall, Est. (SE)</th>
<th>Everyday memory problems, Est. (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>5.76 (2.62)<em>, 6.92 (1.09)</em></td>
<td>0.02 (0.05)</td>
<td>0.04 (0.03)*</td>
</tr>
<tr>
<td>Intrusive thinking (within-person)</td>
<td>-0.36 (0.14)*</td>
<td>0.16 (0.08)</td>
<td>0.13 (0.06)*</td>
</tr>
<tr>
<td>Intrusive thinking (person-mean)</td>
<td>0.00 (0.22)</td>
<td>0.37 (0.09)*</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Model adjusted for day, age, gender, education, working status, and busyness.

#### Table 2

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Category fluency, Est. (SE)</th>
<th>Immediate word recall, Est. (SE)</th>
<th>Everyday memory problems, Est. (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>5.94 (2.42)<em>, 7.67 (1.02)</em></td>
<td>0.05 (0.08)</td>
<td>0.18 (0.06)*</td>
</tr>
<tr>
<td>Multi-tasking (within-person)</td>
<td>-0.04 (0.23)</td>
<td>-0.40 (0.25)</td>
<td>0.13 (0.27)*</td>
</tr>
<tr>
<td>Multi-tasking (person-mean)</td>
<td>-1.15 (0.60)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Model adjusted for day, age, gender, education, working status, and busyness.

**Results**

- **Research question 1:** Cognitive interference and cognition
  - As expected, on days with more intrusive thoughts participants scored worse on category fluency (Figure 1); however, multi-tasking was not related to category fluency.
  - Contrary to our expectations, cognitive interference was not related to memory recall.
  - As expected, on days with more intrusive thinking (Figure 2) and multi-tasking (Figure 3), participants reported more everyday memory problems.

- **Research question 2:** Age as a moderator in cognitive interference-daily cognition relationship
  - Across the adult lifespan, internal sources of cognitive interference associated with the demands of daily life contribute to intradividual fluctuations in cognitive functioning, specifically executive functioning and self-reports of everyday memory problems.
  - In future research we will investigate whether compensatory strategy use is associated with reduced cognitive interference.
  - The results have implications for interventions aimed to improve daily cognition by reducing the role of both daily stress and stress-related cognitive interference in disrupting cognitive functioning processes (Hahn Rickenbach, Almeida, Seeman, Lachman, in press).

### Discussion

- Across the adult lifespan, internal sources of cognitive interference associated with the demands of daily life contribute to intradividual fluctuations in cognitive functioning, specifically executive functioning and self-reports of everyday memory problems.
- In future research we will investigate whether compensatory strategy use is associated with reduced cognitive interference.
- The results have implications for interventions aimed to improve daily cognition by reducing the role of both daily stress and stress-related cognitive interference in disrupting cognitive functioning processes (Hahn Rickenbach, Almeida, Seeman, Lachman, in press).