Autobiographical Memory & Episodic Future Thinking in Older Adults At Risk of Mild Cognitive Impairment

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BACKGROUND

- Previous studies have found changes in autobiographical memory (AM) and episodic future thinking (EFT) in mild cognitive impairment (MCI) and dementia[1,2]
- Unknown whether AM & EFT are impacted in older adults at a stage of cognitive decline that does not meet threshold for clinical MCI diagnosis, referred to as an **"at risk"** stage

Do older adults who are "at risk" of cognitive decline show differences in remembering and imagining events on the Autobiographical Interview[3] relative to healthy older adults?

Hypotheses:

1. At-risk participants will *a)* generate fewer internal (episodic) and more external (non-episodic) details than healthy controls, and *b)* performance will correlate with cognitive status.

2. This above pattern of results will be evident for both past and future events, as indicated by significant past-future correlations.

3. The numbers of internal and external semantic details will be negatively correlated both in at-risk and control participants, but this relationship will be stronger in the at-risk group.

PARTICIPANTS

- 32 community-dwelling older adults enrolled in longitudinal "At Risk" study
- Montreal Cognitive Assessment[4] (MoCA) score used to classify them in either the at-risk or healthy control group

AT-RISK GROUP MoCA[4] ≤ 25 N=16 (3 male)			HEALTHY CONTROL GROUP MoCA[4] ≥ 26 N=16 (2 male)		
	M	SD		M	SD
MoCA	23.69	1.66	MoCA	26.81	0.75
Age (yrs)	76.00	6.87	Age (yrs)	71.94	6.28

PROCEDURE

Autobiographical Interview (AI)[3]

- Six monthly AI telephone sessions approximately 30 minutes in duration
- Each session: 4 event trials blocked by **temporal direction** (past vs. future); within each temporal direction, there were events at 2 **temporal distances** (weeks, years)

Subjective Ratings

- After each trial, participants provided information about the event date, the perspective from which they were thinking about it, and detail, emotion, and significance ratings from 1 (low) to 5 (high)
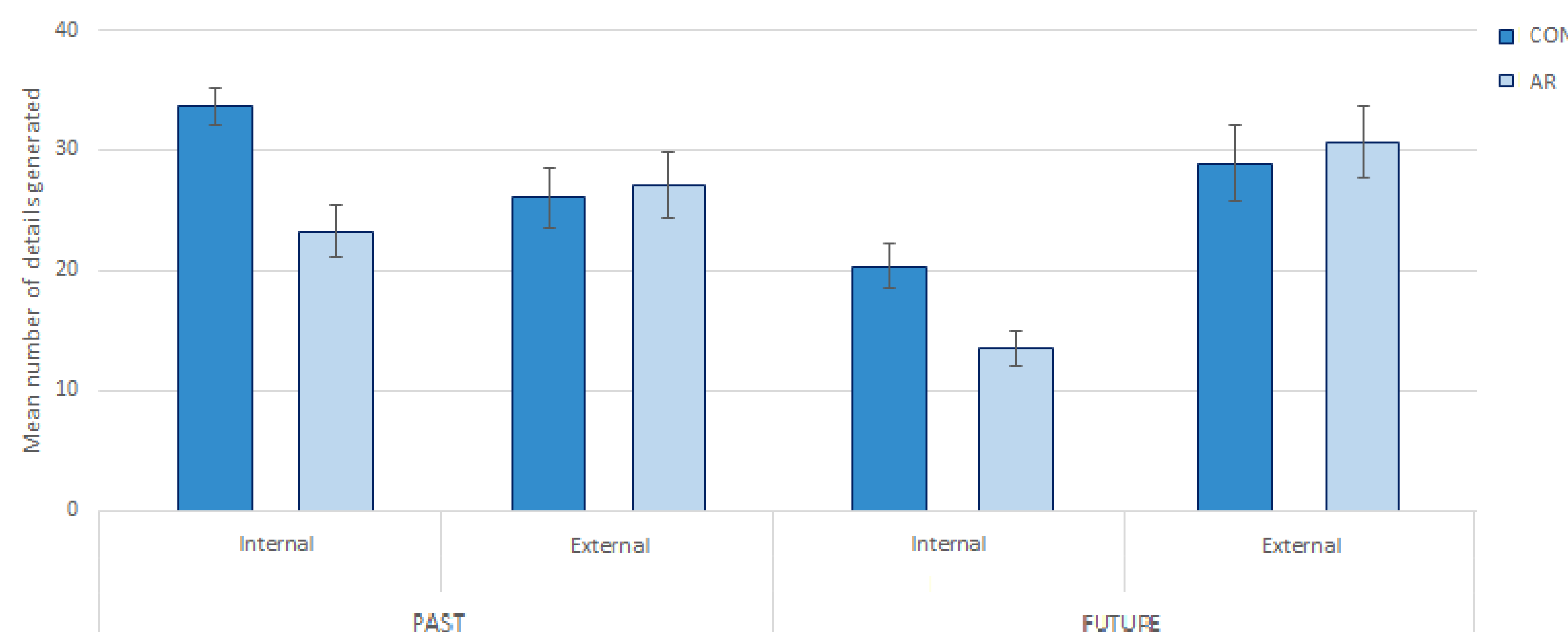
AI Scoring Protocol

- Event transcripts were segmented into informational units, referred to as details
- Details were categorized as being either internal (episodic) or external (non-episodic, including semantic) to the main event described

RESULTS

Hypothesis 1a

**Mean number of details by group, detail type & temporal direction**

Group x Temporal Direction x Detail Type mixed ANOVA; results included:

- **Main effect of Temporal Direction (past > future, $p < .001$)**
- **Qualified by a Temporal Direction x Detail Type interaction ($p < .001$)**
    - → More internal details for past than future events ($p < .001$)
    - → More external details for future than past events ($p = .002$)
- **No significant main effect of Group ($p = .137$)**
- **Significant Group x Detail Type interaction ($p = .032$)**
    - → AR generated fewer internal details than healthy controls ($p < .001$)
    - → No group difference for external details ($p = .725$)
- → **Group x Detail Type x Temporal Direction interaction not significant ($p = .394$)**

Hypothesis 1b

Correlations between mean number of details and cognitive status
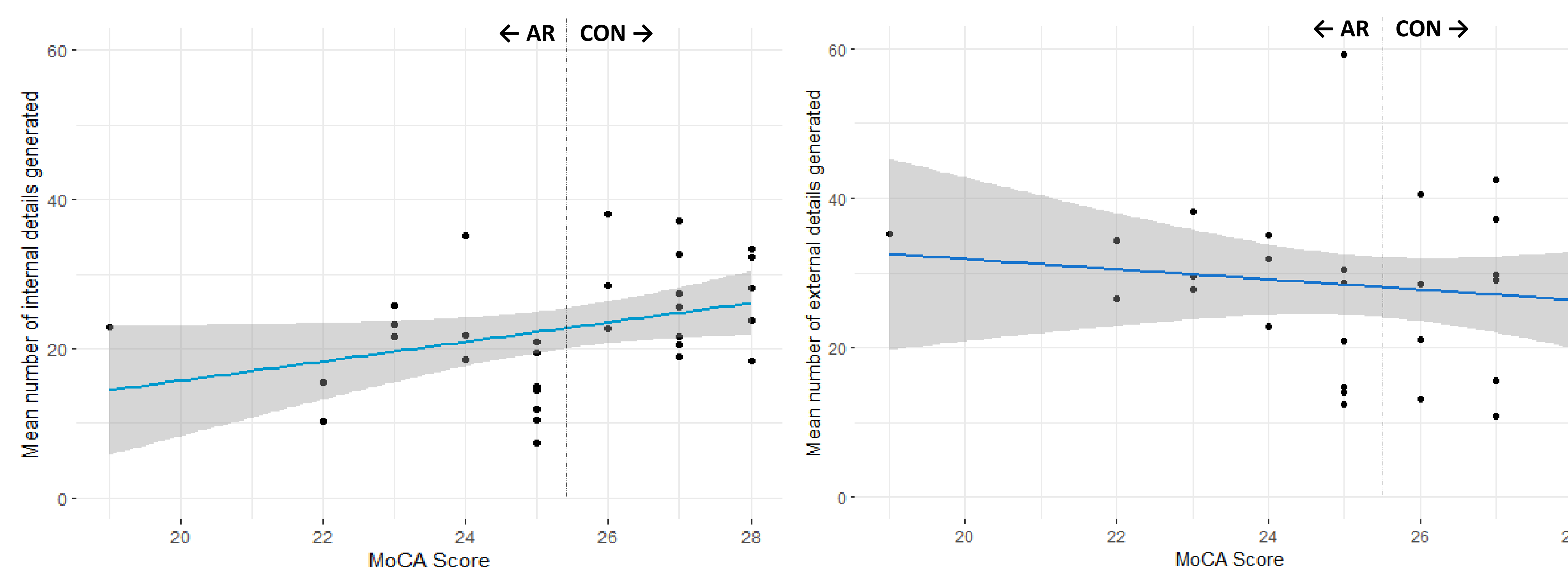
- Mean number of internal details and MoCA score were moderately positively correlated, $r(30) = .35$, $p = .024$.

- Mean number of external details and MoCA score were not significantly correlated, $r(30) = -.132$, $p = .236$.

ADDITIONAL PLANNED ANALYSES

Hypothesis 2

- Pearson's correlations:
    1. between number of past and future internal details
    2. between number of past and future external details
    (computed across the whole sample)

Hypothesis 3

- Pearson's correlation between number of internal details and external semantic details (computed across the whole sample)

DISCUSSION

- AR participants exhibited a differential deficit of internal details which correlated with cognitive status, partially supporting H1 and previous studies conducted with MCI[1] and AD patients[2]

- No overproduction of external details was observed in the AR participants, perhaps because they have not yet reached a level of cognitive decline where this would be evident

- Group differences in internal and external details were consistent across past and future events, providing initial support for H2

- Full analyses will bridge the gap in our knowledge of the trajectory of cognitive decline from healthy aging to dementia as it pertains to autobiographical memory and episodic future thinking abilities

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