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Autobiographical memory at the beginning and in the course of dementia

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INTRODUCTION: The relevance of autobiographical memory (AM) is particularly evident in terms of the effects of the loss of AM and the identification and presentation of identity in illness. Impairments of declarative memory performance - already in preclinical and early stages of Alzheimer's dementia (AD) - are associated with changes in AM, spoken speech and autobiographical narrative. It is the aim of our ongoing work to analyze the development of AM in old age and in the course of pathological memory disease.

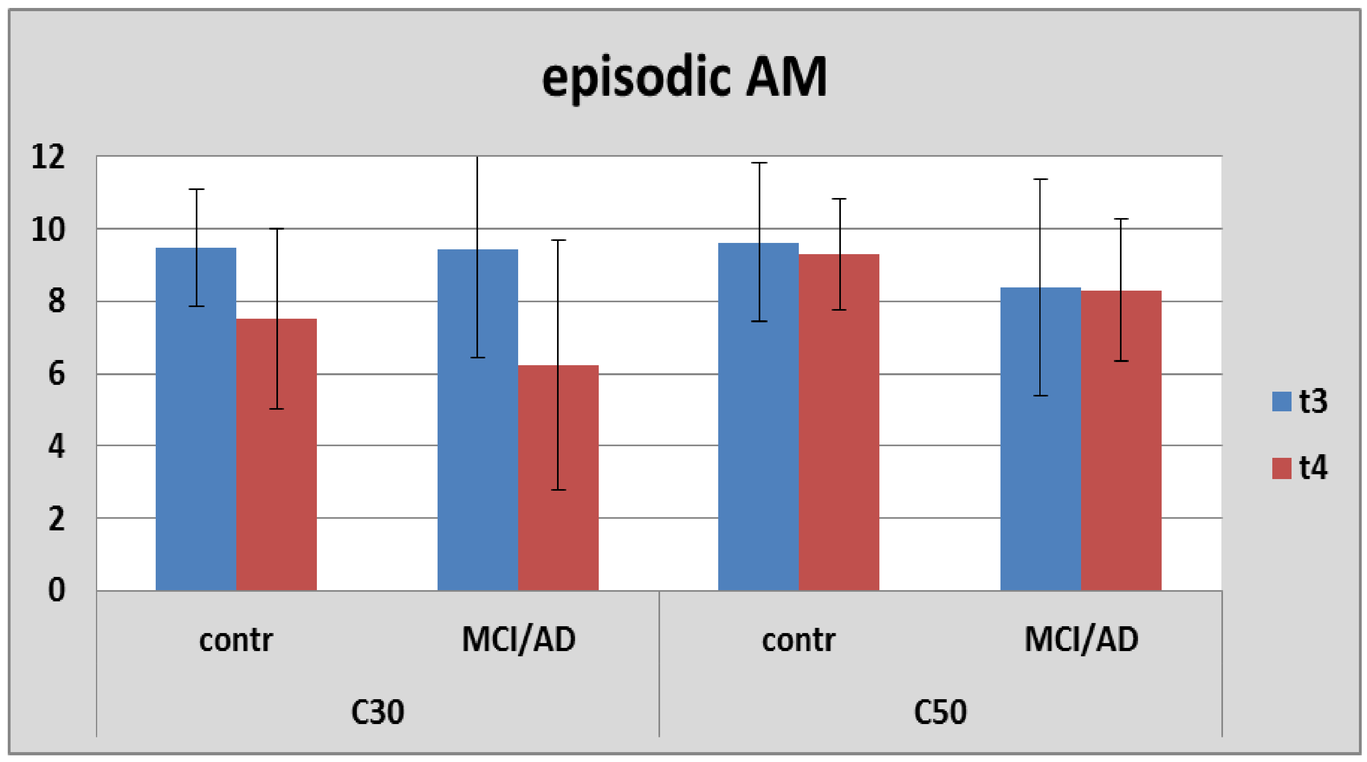
METHOD: AM was measured at the third and fourth examination waves of the Interdisciplinary Longitudinal Study of Adulthood (ILSE) ranging over more than seven years using a semi-structured interview, the Bielefelder Autobiographical memory inventory (BAGI). Semantic autobiographical knowledge and internal pictorial representation, emotional and contextual aspects of episodic AM were recorded over three phases of life: primary school, young adulthood and past five years. The recollected episodes were classified according to the degree of specificity and detailedness as lifetime, general or event-specific autobiographical knowledge. Repeated measures ANOVA was used to examine differences in AM performance for participants with mild cognitive impairment (MCI), AD and a cognitively healthy group and ANOVA to reveal differences between the groups in the three life periods.

Table 1: Description of the subsample.

	C30 frequency/*M* (*SD*)	C50 *M* (*SD*)	t/X^2	*p*
N	45	111		
Sex	n (males) = 23 (51.1%)	n (males) = 59 (53.2%)	$X^2 = 0.054$	n. sign.
MCI/AD	12 (26.2%)	10 (9.0%)	$X^2 = 8.24$	$p = .004$
ageT3	73.80 (1.05)	55.00 (1.06)	$t\,(154) = 100{,}31$	$p < .001$
Education	13.20 (2.94)	14.24 (2.63)	$t\,(154) = 2{,}17$	$p = .032$

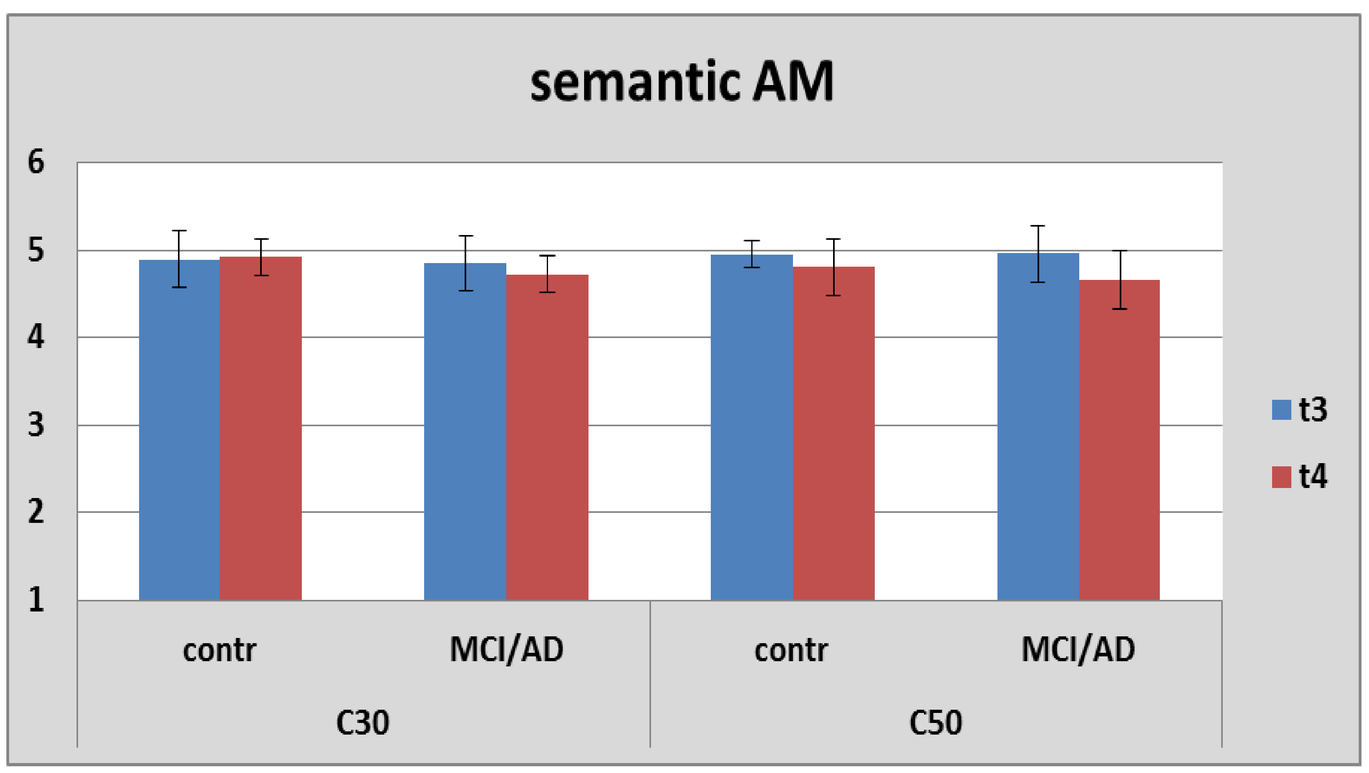
RESULTS: Within this seven-year measurement interval, preliminary results indicate a significant deterioration in **episodic** AM performance even during healthy aging (s. Fig. 1, diagnosis* time: n. sign.) as well as differences between the two birth-cohorts over time. The decline of episodic AM is marked especially in C30 compared to C50. Additionally, persons with MCI or AD recalled fewer details regarding semantic and episodic memories than the healthy control group (contr; main effect of diagnosis F(1,112) = 4.57; p =.035; diagnosis*cohort, diagnosis * time and threefold interaction: n. sign.).
In contrast for **semantic** AM performance significant differences were observed over time only (s. Fig. 2; all other effects n. sign.).
ANOVA comparison of each life period revealed differences between contr and MCI/AD for young adulthood (F(1, 143) = 11.34, p = .001) and past 5 years (F(1,137) = 5.15, p = .025) but not in the amount of details for primary school episodes (n. sign., s. Fig. 3).

DISCUSSION: Our results bear important implications for establishing potential demarcation criteria in healthy aging and the development of MCI/AD as AM performance was sensitive to age and clinical diagnoses in our sample. These results can be used as a starting point for linguistic analyses, as the decline is also reflected in spoken language. The ILSE contains a large corpus of semi-structured interviews of spoken speech on voice recording, which allow for an in depth analysis of linguistic features of autobiographical narratives and even re-narration. The analyses of detailed recordings of AM based on grammatical, lexical and stylistic phenomena could help to identify early signs of MCI and AD and thus foster the development of measures, diagnostics, therapy and prevention.



time F(1, 112) = 16,35 p = .000; time*cohort F (1, 112) = 11,57 p = .001

Figure 1. Episodic memory scores. Means and standard deviations of episodic memory of three phases of life for persons born 1930/32 (C30) vs. born 1950/52 (C50) and cognitive healthy vs. MCI/AD groups repeated measurement after seven years: T3 & T4.



time F(1,113) = 8.44 p = .004; time*cohort F(1,113) = 8.45 p= .066

Figure 2. Semantic memory scores. Means and standard deviations of semantic memory of three phases of life for persons born 1930/32 (C30) vs. born 1950/52 (C50) and cognitive healthy vs. MCI/AD groups repeated measurement after seven years: T3 & T4.

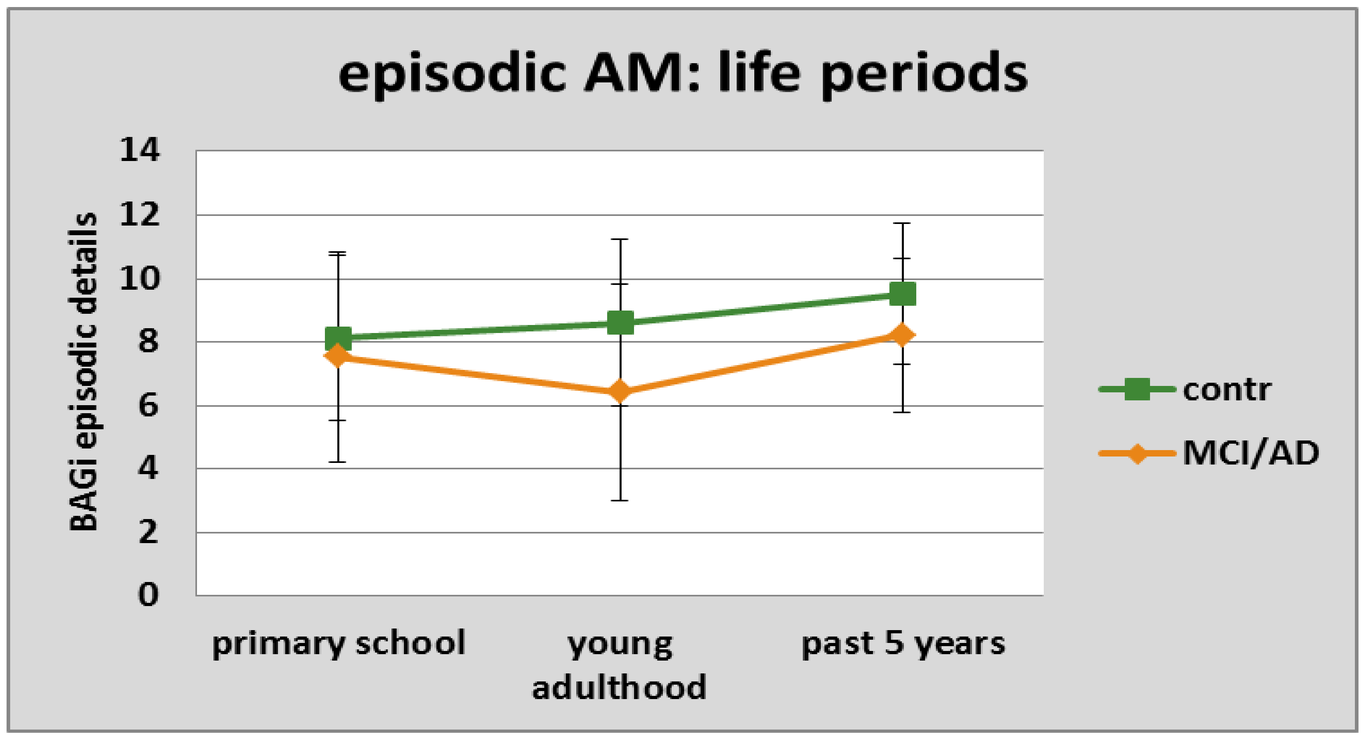


Figure 3. Episodic detail scores for the three phases of life (BAGI).

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