

Baseline facial emotion recognition is associated with clinical decline across the Alzheimer’s disease spectrum: a multi-instrument longitudinal assessment study

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INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	
Facial emotion recognition (FER) is increasingly recognized as a functionally relevant domain in the Alzheimer’s disease (AD) spectrum, yet whether baseline FER is associated with subsequent clinical decline remains insufficiently established.	We studied 328 participants (SCD; n=94, MCI; n=142, AD dementia; n=92); 148 had follow-up assessments (mean 1.59 ± 0.67 years). Linear mixed-effects models examined group-differential trajectories of the MMSE, CDR-SOB, and FER_mean, adjusted for age, sex, education, and baseline values.	FER_mean decreased stepwise across groups at baseline (SCD 17.3±1.5, MCI 16.4±2.1, AD 15.3±2.0; p < 0.001). CDR-SOB showed more consistent group-differential longitudinal trajectories: MCI increased at +0.550 points/year (p < 0.001), with SCD significantly slower (β = -0.491, p = 0.008) and AD faster (β = +0.371, p = 0.038).	FER_mean showed a modest decline in MCI (β = -0.169/yr., p = 0.078) and SCD showed significantly attenuated decline relative to MCI (β = +0.376, p = 0.035). Lower baseline FER was associated with faster CDR-SOB worsening (p = -0.221, p = 0.006) but not MMSE decline (ρ = 0.093, p = 0.255). FER change rates showed a weak, non-significant correlation with MMSE change (p = 0.004, p = 0.960) but a modest significant correlation with CDR-SOB change (p = -0.195, p = 0.018), suggesting partially distinct longitudinal patterns.	Baseline FER was modestly associated with longitudinal worsening in clinical severity (CDR-SOB), but not cognitive screening performance (MMSE) across the pre-dementia to dementia spectrum. FER trajectories showed limited correlation with traditional measures. These findings indicate that FER may have a potential complementary role of social cognitive assessment in the AD continuum, pending further validation.