



Short-Term Psychological Outcomes of Amyloid- β Imaging Disclosure in MCI: An EMA-Based Intensive Longitudinal Analysis

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BACKGROUND

- As Alzheimer's disease (AD) biomarker research advances, ethical obligations to disclose amyloid- β (A β) imaging results to participants with mild cognitive impairment (MCI) have increased.
- However, such disclosures may pose psychological risks, necessitating robust adverse event monitoring.
- Ecological momentary assessment (EMA) offers a real-time approach to detect mood fluctuations post-disclosure.

OBJECTIVES

- Building on a prior R01 study, this analysis examined the short-term longitudinal impact of A β disclosure on depression and anxiety in MCI participants using intensive EMA data.

METHODS

- Data were derived from the study “Return of Amyloid Imaging Research Results in MCI” (R01AG046906, PI: Lingler).
- 36 MCI participants completed 12 days of telephone-based EMA following A β disclosure. EMA screened for depressive symptoms (PHQ-2) and anxiety (GAD-2). EMA screened for depressive symptoms (PHQ-2) and anxiety (GAD-2).
- Intensive longitudinal analyses were conducted using multilevel mixed-effects models to examine symptom trajectories over time.
- A β disclosure status (positive vs. negative) served as the primary predictor. Models included random intercepts for participants, fixed effects for time, disclosure status, and covariates (age, sex, and education), as well as tested interactions between time and disclosure status and between time and age.

RESULTS

- The mean age of participants was 72.9 years, 55.6% were female, and mean education was 16.8 ± 2.42 years. Most (67%) received negative A β disclosure results.
- Disclosure status did not significantly affect the trajectories of depressive symptoms ($\beta = 0.25$, $p = 0.25$) or anxiety ($\beta = 0.26$, $p = 0.49$) over 12 days.

- A significant time $\times$ age interaction was observed for depression ($\beta = 0.003$, $p = 0.028$), with decreasing symptoms among younger participants and increasing symptoms among older participants;
- No such interaction was found for anxiety ($\beta = -0.0003$, $p = 0.80$). EMA generated one suicidal ideation alert; clinical follow-up indicated no active suicidal ideation.

Table 1: Demographic and Clinical Characteristics (n=36)

Variables	Summary Statistics
Age (years), Mean $\pm$ SD (Range)	72.9 $\pm$ 8.32 (52-85)
<= 70 years	14 (38.9%)
> 70 years	22 (61.1%)
Sex, n (%)	
Male	16 (44.4%)
Female	20 (55.6%)
Education (years), Mean $\pm$ SD (Range)	16.8 $\pm$ 2.42 (12-20)
<= 16 years	15 (41.7%)
> 16 years	21 (58.3%)
Disclosure Status, n (%)	
Positive	12 (33.3%)
Negative	24 (66.7%)

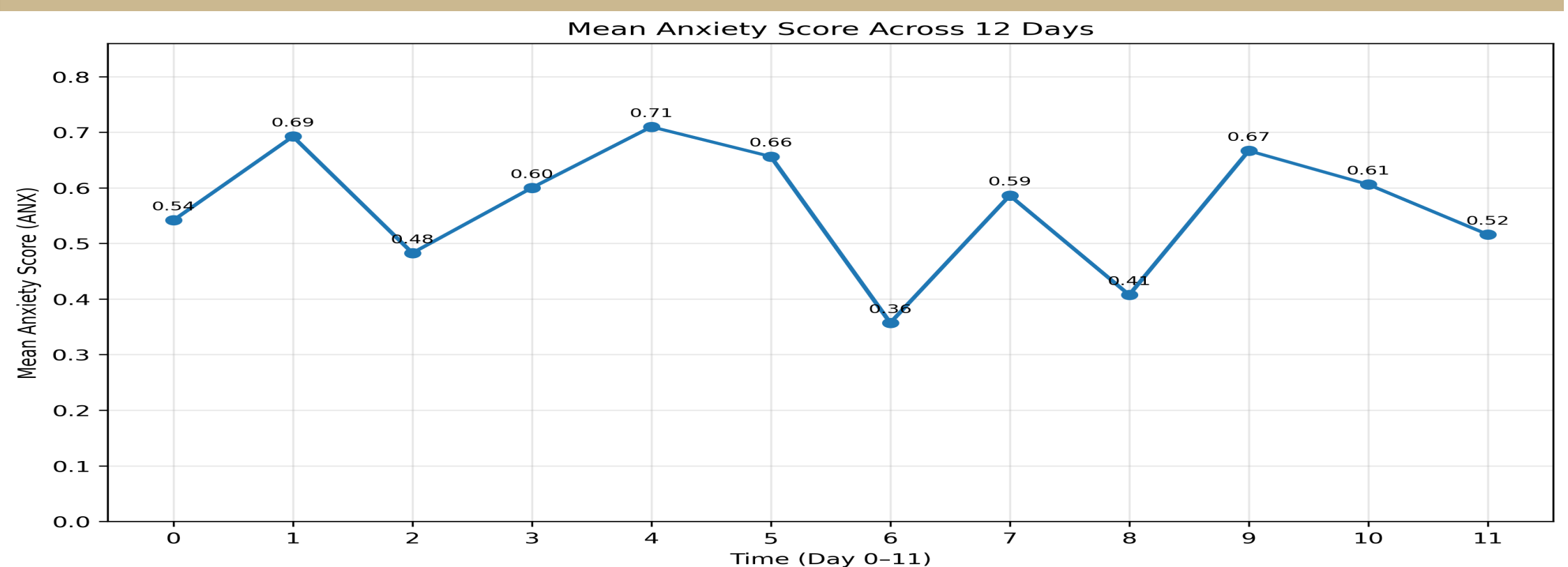
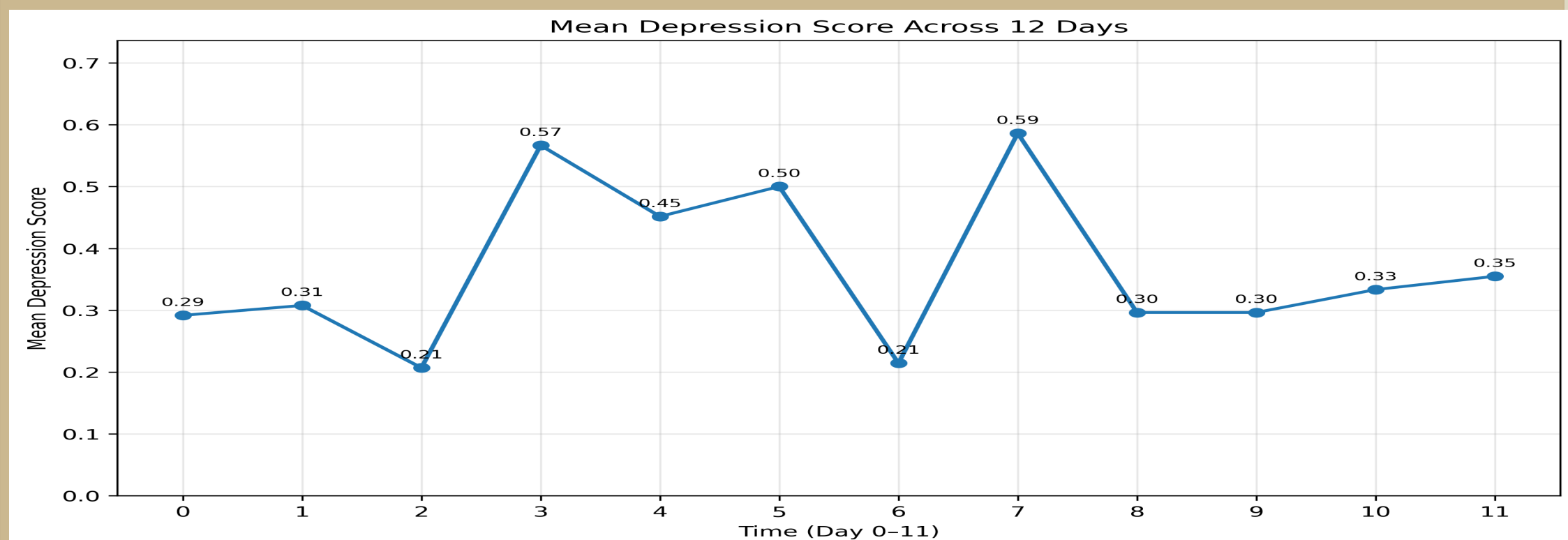
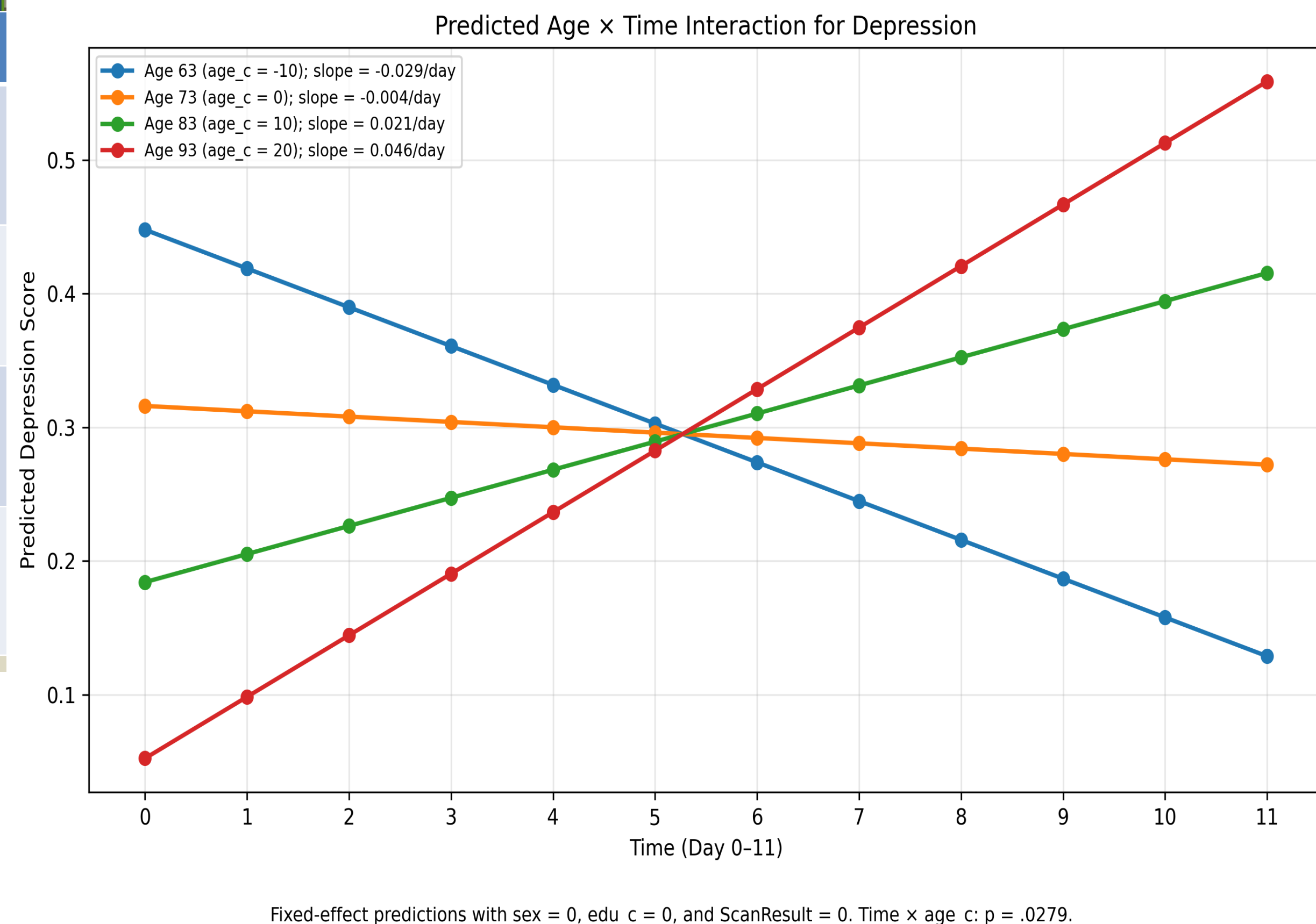


Table 2: The Depression and Anxiety Symptom Trajectory over 12 days EMA using Linear Mixed Model

	Depression		Anxiety	
	Estimates	P-value	Estimates	P-value
Time	-0.004	0.66	-0.022	0.03
Sex	0.030	0.88	0.25	0.46
Education (centered)	-0.115	0.015	-0.096	0.24
Age (centered)	-0.013	0.35	-0.015	0.52
Disclosure Status	0.25	0.25	0.26	0.49
(Positive)				
Time* Age	0.0025	0.028	-0.00032	0.80



CONCLUSIONS

- A β disclosure does not adversely affect short-term changes in depression or anxiety in MCI research participants overall.
- However, age moderated depression symptom trajectories, suggesting increased vulnerability in older individuals.
- EMA may enable real-time monitoring and age-tailored follow-up in AD biomarker studies.

ACKNOWLEDGMENTS

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