

SUPPLEMENTARY FILE 1

Supplementary File 2

The Long-Term Neuroprotective Effect of MIND and Mediterranean Diet on Patients with Alzheimer's Disease

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LINEAR MIXED MODEL EFFECT AND SENSITIVITY ANALYSIS

This was done to check for attrition or bias and inter-subjective measures.

Table S1: Mixed-Effects Model Results: Cognitive Function Over Time

Predictor	MMSE β (SE)	MMSE p- value	MoCA β (SE)	MoCA p- value
Intercept	23.282 (0.403)	0.0	22.483 (0.468)	0.0
Timepoint[T.6M]	-0.322 (0.032)	0.0	-0.327 (0.032)	0.0
Timepoint[T.12M]	-0.647 (0.032)	0.0	-0.659 (0.032)	0.0
Timepoint[T.18M]	-0.977 (0.032)	0.0	-0.983 (0.032)	0.0
Timepoint[T.24M]	-1.287 (0.032)	0.0	-1.294 (0.032)	0.0
Timepoint[T.30M]	-1.644 (0.032)	0.0	-1.632 (0.032)	0.0
Timepoint[T.36M]	-1.947 (0.032)	0.0	-1.978 (0.032)	0.0
Timepoint[T.42M]	-2.310 (0.032)	0.0	-2.270 (0.032)	0.0

Timepoint[T.48M]	-2.604 (0.032)	0.0	-2.605 (0.032)	0.0
Timepoint[T.54M]	-2.903 (0.032)	0.0	-2.915 (0.032)	0.0
Timepoint[T.60M]	-3.266 (0.032)	0.0	-3.317 (0.032)	0.0
Sex[T.Male]	0.087 (0.073)	0.2316	-0.031 (0.084)	0.7092
APOE_e4_Status[T.Yes]	-0.960 (0.075)	0.0	-1.151 (0.087)	0.0
MIND_Diet_Score	0.247 (0.017)	0.0	0.267 (0.020)	0.0
Mediterranean_Diet_Score	0.293 (0.016)	0.0	0.323 (0.019)	0.0
Age	-0.001 (0.004)	0.7329	-0.000 (0.004)	0.9623
Education_Years	-0.012 (0.010)	0.2546	-0.002 (0.012)	0.8659

Table S2: SENSITIVITY ANALYSIS

Variable	Imputed Coeff	Complete Case Coeff
MMSE Model (Cognitive Function)		
MIND Diet Score	+0.247	+0.247
Mediterranean Diet Score	+0.293	+0.293
APOE-ε4 Status (Yes)	−0.96	−0.96
Timepoint (60M vs BL)	−2.62	−2.62
MoCA Model (Cognitive Function)		
MIND Diet Score	+0.267	+0.267
Mediterranean Diet Score	+0.323	+0.323
APOE-ε4 Status (Yes)	−1.15	−1.15
Timepoint (60M vs BL)	−2.66	−2.66

FDR Correction for Multiple Comparisons

To address the risk of inflated Type I error due to multiple hypothesis testing across cognitive outcomes, we applied False Discovery Rate (FDR) correction using the Benjamini-Hochberg method. The table below presents both the raw and adjusted p-values, along with FDR significance status.

Table S3: False Discovery Rate (FDR) correction using the Benjamini-Hochberg method.

Test	Raw p-value	FDR-adjusted p-value	Significant (FDR)
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Intercept	0.000e+00	0.000e+00	Yes
Timepoint[T.36M]	0.000e+00	0.000e+00	Yes
Timepoint[T.42M]	0.000e+00	0.000e+00	Yes
Timepoint[T.48M]	0.000e+00	0.000e+00	Yes
Timepoint[T.54M]	0.000e+00	0.000e+00	Yes
Timepoint[T.54M]	0.000e+00	0.000e+00	Yes
Timepoint[T.60M]	0.000e+00	0.000e+00	Yes
Timepoint[T.42M]	0.000e+00	0.000e+00	Yes
Timepoint[T.36M]	0.000e+00	0.000e+00	Yes
Timepoint[T.60M]	0.000e+00	0.000e+00	Yes
Timepoint[T.48M]	0.000e+00	0.000e+00	Yes
Intercept	0.000e+00	0.000e+00	Yes
Timepoint[T.30M]	1.567e-212	4.097e-212	Yes
Timepoint[T.30M]	1.948e-206	4.730e-206	Yes
Timepoint[T.Baseline]	9.927e-96	2.250e-95	Yes
Timepoint[T.Baseline]	9.437e-91	2.005e-90	Yes
Timepoint[T.24M]	2.838e-89	5.676e-89	Yes
Timepoint[T.24M]	9.818e-89	1.855e-88	Yes
Mediterranean_Diet_Score	2.972e-72	5.319e-72	Yes
Mediterranean_Diet_Score	1.633e-65	2.777e-65	Yes
MIND_Diet_Score	3.599e-45	5.827e-45	Yes
APOE_e4_Status[T.Yes]	9.740e-40	1.505e-39	Yes
MIND_Diet_Score	2.068e-39	3.057e-39	Yes
APOE_e4_Status[T.Yes]	2.187e-37	3.099e-37	Yes
Timepoint[T.6M]	1.626e-25	2.212e-25	Yes
Timepoint[T.18M]	9.071e-25	1.186e-24	Yes
Timepoint[T.18M]	1.869e-24	2.353e-24	Yes
Timepoint[T.6M]	3.014e-24	3.660e-24	Yes
Sex[T.Male]	2.316e-01	2.715e-01	No
Education_Years	2.546e-01	2.885e-01	No
Sex[T.Male]	7.092e-01	7.778e-01	No
Age	7.329e-01	7.787e-01	No
Education_Years	8.659e-01	8.921e-01	No
Age	9.623e-01	9.623e-01	No