

Results of the eSMARTER Study: A randomized trial of provider vs. digital return of plasma pTau-217 results

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BACKGROUND

- Regulatory approval of p-Tau217 for the diagnosis of Alzheimer's pathology will broaden its use in clinical diagnosis and management.
- The growing utility of blood biomarkers, shortage of genetic counselors and dementia specialists, and the 21st Century Cures Act, heighten the need for safe and efficient ways to return results.

METHODS

- Decentralized, RCT to evaluate self-directed, scalable digital return of APOE and pTau-217 results.
- Plasma p-Tau217 was measured on the Roche cobas e801 platform using a Research Use Only assay.
- Thresholds were developed resulting in three stratification levels: negative, intermediate, and positive.
- Sample:** 681 participants learned their APOE results. Of these, 500 learned their pTau results. 337 participants were randomized to the self-mediated digital (eHealth) arm and 163 to clinician-mediated (telehealth) return of results. (#NCT06459583).
- Primary outcomes:** pTau knowledge and changes in general anxiety and disease-specific distress.
- Timepoints:** Baseline, 1-7 days post-disclosure, and 4 weeks post-disclosure.
- Analysis:** T-tests and Chi-squared tests to examine if self-mediated eHealth disclosure results in equivalent or improved outcomes compared to telehealth.

EXPLANATION OF RESULT

“A “positive” pTau-217 result means there are likely elevated levels of amyloid in your brain.

If someone does not have Alzheimer's symptoms, a positive pTau-217 means they are at increased risk of developing Alzheimer's symptoms.

This result does not mean you will definitely develop Alzheimer's symptoms.”

“An “intermediate” pTau-217 result means there may be amyloid in your brain, but below an elevated level.

An intermediate result means amyloid may be building up. In the future, the level could become elevated.

A pTau-217 test can be “intermediate” in someone who does not have Alzheimer's symptoms.

This result may suggest an increased risk of Alzheimer's symptoms. Research is being done to better understand this risk.

This result does not mean you will definitely develop Alzheimer's symptoms.”

“A “negative” pTau-217 result means it is unlikely that elevated levels of amyloid are present in your brain.

It is possible there may be amyloid in your brain, but at a level below what the test can detect.

This result does not suggest an increased risk of Alzheimer's symptoms.

You can have a negative pTau-217 result and still develop Alzheimer's symptoms later.”

STUDY CONTENT, DEMOGRAPHICS, pTAU-217 DISCLOSURE OUTCOMES

Total Sample Demographics (n=500)	Number
Average Age	67.72
APOE e4 Carrier Status	
Carrier	336 (67.2%)
Non-Carrier	164 (32.8%)
Family History of Alzheimer's	347 (69.4%)
Telephone MoCA (0-22)	19.04±2.03
Living in Rural Area	253 (50.6%)
Education	
≤High School or less	19 (3.8%)
Some College or Trade School	85 (17.0%)
Bachelor's Degree or Higher	396 (79.2%)
Race	
American Indian or Alaska Native	3 (0.6%)
Asian	11 (2.2%)
Black or African American	16 (3.2%)
More than one race	13 (2.6%)
White	449 (89.8%)
Ethnicity	
Hispanic or Latino	26 (5.2%)
Female Sex	342 (68.4%)

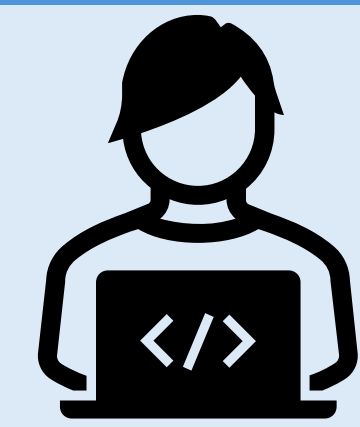
	Telehealth	eHealth	p
Sample size	163	337	
pTau knowledge (4 weeks)	6.63 (0.66)	6.62 (0.70)	0.859
Anxiety change (Baseline → 1–7 days)	-0.37 (7.20)	-0.84 (6.56)	0.461
Anxiety change (Baseline → 4 weeks)	-0.49 (6.40)	0.38 (5.73)	0.131
Disease-Specific Distress (Baseline)	3.52 (5.48)	3.93 (5.40)	0.431
Disease-Specific Distress (1–7 days)	3.31 (5.32)	4.45 (6.07)	0.041
Disease-Specific Distress (4 weeks)	4.11 (5.74)	4.17 (5.94)	0.915
DSD change (Baseline → 1–7 days)	-0.22 (4.96)	0.52 (4.74)	0.112
DSD change (Baseline → 4 weeks)	0.58 (5.51)	0.24 (4.61)	0.463
PHQ-9 (Baseline)	1.64 (1.87)	1.58 (1.99)	0.713
PHQ-9 (1–7 days)	1.44 (1.75)	1.38 (1.76)	0.709
PHQ-9 (4 weeks post-disclosure)	1.49 (1.83)	1.48 (1.78)	0.934
PHQ-9 change (Baseline → 1–7 days)	-0.20 (1.60)	-0.20 (1.46)	0.968
PHQ-9 change (Baseline → 4 weeks)	-0.15 (1.76)	-0.10 (1.64)	0.739
IGT-AD Total (1–7 days)	12.70 (10.52)	14.60 (12.80)	0.101
IGT-AD Total (4 weeks)	13.43 (11.30)	14.50 (12.11)	0.349
Satisfaction (1–7 days)	4.58 (0.68)	4.41 (0.70)	0.016
Perceived Risk – Numeric (Baseline)	35.60 (22.67)	38.92 (22.58)	0.126
Perceived Risk – Numeric (4 weeks)	39.34 (25.11)	42.23 (23.67)	0.219
Psychological Well-Being (Baseline)	73.83 (7.93)	72.12 (9.59)	0.051
Psychological Well-Being (4 weeks)	73.82 (8.29)	72.10 (9.42)	0.05
Stigma (4 weeks)	7.98 (2.72)	8.37 (2.94)	0.16
Correct result recall (1–7 days)	97%	98%	0.642
Correct result recall (4 weeks)	95%	91%	0.203

DISCUSSION



Clinician-Mediated Disclosure
VS.

Digital Self-Mediated Disclosure



These findings support digital platforms as scalable modalities to return pTau-217 results.

No significant between-arm differences on pTau knowledge or changes in anxiety and AD-specific distress.

→ Small differences at 1-7 days on AD-specific distress and disclosure satisfaction

→ Next Steps: Examine outcomes by result type

Check out these other eSMARTER posters:

eSMARTER APOE disclosure outcomes – Monday-0959 (McCarty Wood)

eSMARTER overview – Wednesday-0374 (Langbaum)