



Subjective reports of problems remembering names reflect performance on neuropsychological tests for recalling proper names

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Takeaway: Participants reporting memory difficulties performed worse on concurrent, but not prospective, tests of proper name after accounting for amyloid status

Background

– Although subjective cognitive complaints (SCC), particularly difficulty recalling proper names, is a common age-related occurrence, **18-53% of people who report SCC have elevated amyloid**.

– Proper name recall (PNR) is especially susceptible to brain injury or neurodegeneration; **amyloid burden accelerates decline in objectively measured PNR**.

Study Objectives

We hypothesized that

– Participants with more subjective cognitive complaints (i.e total score; T-SCC) in general, and specifically complaints about remembering names (N-SCC), would perform poorly on objectively measured proper name recall (PNR)

– The presence of beta-amyloid accumulation would moderate the association between SCC and PNR

Participants & Measures

Participants: *N* = 1391 participants from the Wisconsin Registry for Alzheimer's Prevention (WRAP) who

– were cognitively unimpaired at baseline and

– had baseline **SCC (Memory functioning questionnaire, MFQ)** and **Logical Memory** subtest of the Wechsler-Memory Scale-Revised from at least one study visit (See *Table 1* for baseline characteristics).

– Median number of study visits was 5.

Predictors:

– **N-SCC** = single item, “How often does [remembering names] present a problem for you ... (1= always to 7 - never)”

– **T-SCC** = average of 17 items (e.g. faces, appointments, etc) in the MFQ frequency of forgetting subscale, excluding names

SCC was binarized by median split (see Table 1)

– Amyloid status (**A-/A+**) was based on a cut-off of plasma pTau217 < or ≥ .42 pg/mL following Ashton et al., 2024. Plasma samples were assayed using the Simoa pTau217 (ALZpath) assay (Quanterix, USA).

Outcomes:

– Number of proper names recalled (**PNR**) was derived as a subscore (range 0-9) from Logical memory story I (**immediate**) and II (**delayed**) recall tasks.

Statistical Approach

Model 1: To evaluate change in PNR in the presence of SCC

Four separate longitudinal linear mixed effects (LME) models with age (centered) as time and participant-level random intercepts, stratified by amyloid status.

Outcomes: Immediate or delayed PNR

Predictors of interest: N-SCC or T-SCC group (2 levels; high complainers vs low complainers), Age, N-SCC x age or T-SCC x age interactions

Covariates: Gender (ref: female), total test-exposures, WRAT-3 reading scores, and age-squared were included as fixed effects.

Model 2: To evaluate the main effect of SCC on PNR after accounting for the effect of amyloid status

The previous LMEs were refit after dropping non-significant SCC x age interactions and adding ptau217 and ptau217xAge as covariates.

Table 1. Baseline characteristics by baseline amyloid status			
	A- n=1068	A+ n=323	p value
Total N=1391			
Age, m(sd)	58.26 (6.77)	60.64 (6.35)	< 0.01
Male, n(%)	329 (30.8%)	87 (26.9%)	0.18
Race, n(%)			0.01
White	933 (87.4%)	293 (90.7%)	
Black/AA	117 (11.0%)	20 (6.2%)	
Other	18 (1.7%)	10 (3.1%)	
Hispanic, n(%)	13 (1.2%)	3 (0.9%)	0.67
APOE4 carrier, n(%)	350 (34.2%)	179 (57.2%)	< 0.01
WRAT, m(sd)	105 (9.73)	106 (8.96)	0.04
pTau217, median (IQR)	0.24 (0.10)	0.50 (0.18)	---
T-SCC, median(IQR)	5.5 (4.9-6.0)	4.5 (4.8-6.1)	< 0.01
N-SCC, median (IQR)	4 (3-5)	4 (3-5)	0.46
Immediate PNR, m(sd)	6.15 (1.70)	6.12 (1.71)	0.79
Delayed PNR, m(sd)	4.65 (2.22)	4.57 (2.18)	0.55

Abbreviations: Black/AA = Black or African American, WRAT = Wide Range Achievement Test-III reading score; T-SCC = total self-reported memory concerns, N-SCC = self-reported frequency of forgetting names, PNR = Number of proper names recalled during logical memory tasks

Note: P values for difference between groups comes from t-test for continuous variables and chi-squared test for categorical variables.

Results

Model 1. In the stratified analyses:

– PNR decreased significantly over time.

– N-SCC and T-SCC were not associated with change in PNR (ps ranged .29-.98 for interaction terms) among either A- or A+ groups (*not shown*).

Model 2 (see Table 2 and Figure 1), after accounting for the effects of ptau217:

– Participants in the low N-SCC group recalled 0.27 (p<.001) fewer immediate PNRs and 0.39 (p<.001) delayed PNRs.

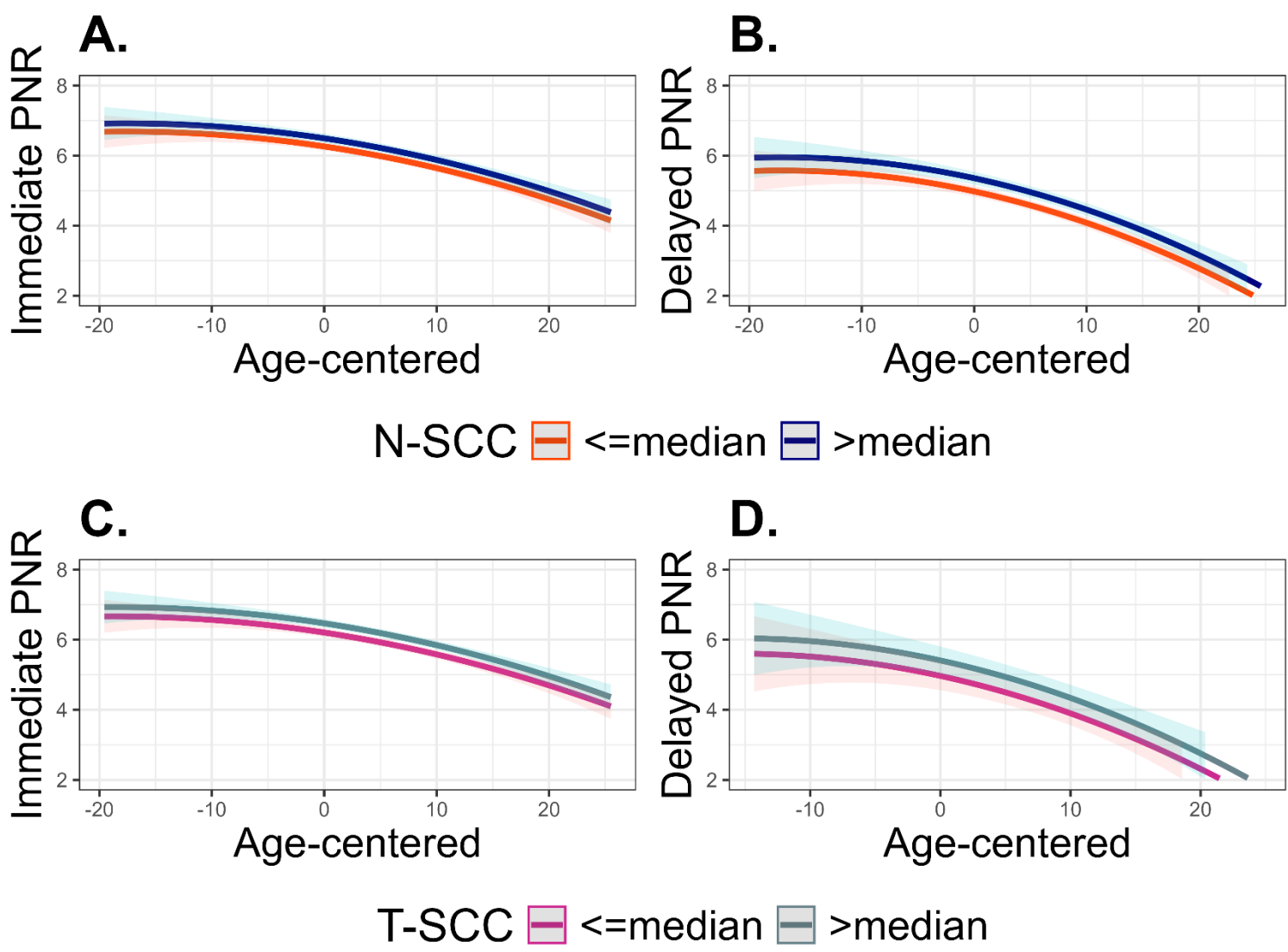
– Participants in the low T-SCC group scored 0.25 (p<.001) and 0.33 (p<.001) fewer PNRs during immediate and delayed recall.

Table 2. Model 2 Regression coefficients (95%CI) for predictors of interest from linear mixed effects				
Predictors	Immediate PNR		Delayed PNR	
	Est 95% CI	p	Est 95% CI	p
Concerns about Forgetting Names				
N-SCC group	0.27 0.13 – 0.40	<.001	0.39 0.21 – 0.58	<.001
A+ status	0.10 -0.08 – 0.27	.29	0.09 -0.14 – 0.33	.43
Age	-0.05 -0.06 – -0.03	<.001	-0.07 -0.08 – -0.05	<.001
A+ status × Age	-0.03 -0.04 – -0.01	<.001	-0.05 -0.06 – -0.03	<.001
Total Memory Concerns				
T-SCC group	0.25 0.11 – 0.38	<.001	0.33 0.15 – 0.51	<.001
A+ status	0.11 -0.07 – 0.29	.22	0.11 -0.13 – 0.35	.36
Age	-0.05 -0.06 – -0.04	<.001	-0.07 -0.08 – -0.05	<.001
A+ status × Age	-0.03 -0.04 – -0.01	<.001	-0.05 -0.06 – -0.03	<.001

Abbreviations: A=amyloid status, PNR = Number of proper names recalled, Est = Regression estimate, CI = Confidence interval, SCC = subjective memory concerns

Note: Age is centered at median age 59 years. All models included gender (ref: female), WRAT standard reading score, Visit number to account for practice effects and age-squared as fixed effects and participant-level random intercepts. We used a median split to create high and low N-SCC and T-SCC groups (ref: <= median). Positive amyloid status (A+) was based on a cut-off of pTau217 >.42 pg/mL

Figure 1. Model estimated change in PNR stratified by SCC group



Note: Panel **A** and **C** depict longitudinal change in immediate PNR, panel **B** and **D** depict longitudinal change in delayed PNR. A median split was used to create SCC groups (**low = more complaints**). Estimated PNR includes linear and quadratic effects for age. For visual purposes gender was set at 0 (i.e. female); continuous covariates (ptau217, WRAT reading score, number of visit exposures) were set at their median value.

Conclusions

– Participants reporting more subjective cognitive complaints performed more poorly on an objective task that required recalling proper names compared to participants reporting fewer subjective cognitive complaints.

– The association between subjective cognitive complaints was not moderated by amyloid status.

– Participants saw a decline in general on their ability to recall proper names over time, *but this was identical between baseline SCC groups*.

Subjective cognitive complaints may be a very early indicator of subtle cognitive deficits.

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