

# Memory Complaints Correlate with Memory Performance Among Asymptomatic Alzheimer's Offspring

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## BACKGROUND

Older adults' subjective memory complaints have been found to be more closely related to depression, personality, and physical health than to objective memory performance. However, recent longitudinal studies have reported associations between subjective memory complaints and subsequent declines in memory or increased risk of dementia.

Family members of persons diagnosed with AD may have special impetus to monitor and evaluate their own everyday memory skills because of their close genetic and social relationships with individuals with severe memory loss.

## OBJECTIVES

We report baseline findings for middle-aged children of persons with AD enrolled in a research registry for the study of AD risk factors and prevention, the **Wisconsin Registry for Alzheimer's Prevention (WRAP)**.

Our objectives were to determine the prevalence of subjective memory complaints in this at-risk sample and to assess the relationship between complaints and performance on memory tests, taking into account potential confounders such as depressive symptoms, health status, and APOE genotype.

## METHODS

### Sample:

428 cognitively-normal community-residing volunteers, 40 to 65 years old, English speaking, had a parent with either autopsy-confirmed or probable AD, and no history of neurological disorder or stroke.

### Subjective Memory Measure:

Single item: "Do you feel that you have problems with your memory?" Three response options: Yes, No, Don't know. Don't know responders were combined with negative responders in analyses.

### Objective Memory Measures:

Learning and recall of 15 words (Auditory Verbal Learning Test, Rey, 1964) and recognition of unfamiliar faces (Wechsler Memory Scale-III Faces I and II, Wechsler, 1997).

## RESULTS

TABLE 1. WRAP PARTICIPANTS WITH AND WITHOUT MEMORY COMPLAINTS

Demographics	Complaint (n=101)	No Complaint (n=327) <sup>a</sup>
Age in years	53.25 (5.91)	52.66 (6.38)
Education in years	16.16 (2.51)	16.00 (2.66)
Female gender, n (%)	79 (78)	223 (68)
White/Caucasian, n (%)	98 (97)	320 (98)
<b>Health History</b>		
Diagnosed illness (sum) (max=38)	2.75 (2.15)	2.03 (1.93)**
Depression, n (%)	29 (29)	64 (20)
Anxiety Disorder, n (%)	10 (10)	32 (10)
Depression rating (CES-D)	8.48 (7.27)	5.61 (6.54)**
<b>Medications and Supplements</b>		
Antidepressants, n (%)	24 (24)	66 (20)
Estrogen, n (%)	23 (23)	92 (13)*
Vitamin B, n (%)	16 (16)	52 (16)
Vitamin E, n (%)	52 (52)	168 (51)
<b>Lifestyle Variables</b>		
Exercise frequency per month <sup>b</sup>	3.51 (0.88)	3.67 (0.67)
Alcohol use per week <sup>c</sup>	1.80 (1.41)	1.66 (1.40)
Smoked tobacco in past month, n (%)	8 (8)	26 (8)
<b>APOE allele 4, n (%)</b>	<b>37 (37)</b>	<b>153 (49)*</b>

*Note.* Values are means (SDs) unless otherwise noted.

a: "Don't know" responders were included in the No Complaint group.

b: 1=never, 2=once per month, 3=1 to 4 times per month, 4=once per week

c: 0=never, 1=once per week, 2=1 to 2 days, 3=3 to 4 days, 4=5 to 6 days, 5=daily

\*p < .05 \*\*p < .01

TABLE 2. MEMORY PERFORMANCE OF WRAP PARTICIPANTS WITH AND WITHOUT MEMORY COMPLAINTS

Measure	Complaint (n=101)	No Complaint (n=327)
Auditory Verbal Learning Test		
Trial 1	6.31 (1.77)	6.28 (1.57)
Trial 2	9.06 (2.22)	9.42 (2.07)*
Trial 3	10.82 (2.12)	11.20 (2.06)*
Trial 4	11.85 (1.89)	12.14 (1.98)*
Trial 5	12.46 (1.97)	12.75 (1.80)*
Learning total (sum of 5 trials)	50.50 (8.45)	51.80 (7.94)*
List B	5.63 (1.62)	5.94 (1.59)*
Trial 6 (recall after interference)	10.50 (2.76)	10.89 (2.62)
Delayed recall	10.47 (3.07)	10.81 (2.88)
WMS-III Faces		
I - Immediate recognition	38.28 (3.70)	37.85 (4.58)
II - Delayed recognition	39.52 (3.53)	39.42 (4.17)
Full-Scale IQ Estimate (WASI)	113.96 (9.93)	113.07 (8.94)
Word Reading (WRAT3) Standard Score	106.27 (9.24)	105.18 (10.23)
Working Memory Index Score (WAIS-III)	103.72 (14.16)	105.53 (12.62)

*Note.* Tabled values are raw score means (SDs) unless otherwise noted.

WASI=Wechsler Abbreviated Scale of Intelligence, WMS-III=Wechsler Memory Scale-III, WRAT3=Wide

Range Achievement Test, 3rd edition. WAIS-III=Wechsler Adult Intelligence Scale-III

\*p < .05 with age, education, and gender covaried

## SUMMARY OF RESULTS

- One in four (24%) WRAP participants reported problems with their memory.
- Participants with memory complaints had a higher level of current depressive symptoms and more medical illnesses overall (see Table 1).
- There were no differences in demographics, history of diagnosed depression or anxiety disorder, use of antidepressant medication, frequency of exercise, or alcohol or tobacco use. Prevalence of an APOE e4 allele was higher in the no-complaints group.
- Participants with memory complaints showed slower verbal list learning than those without complaints, with demographics covaried (see Table 2). Differences remained significant when CES-D scores and sum of illnesses were added as covariates. There were no differences in face recognition performance.

## DISCUSSION

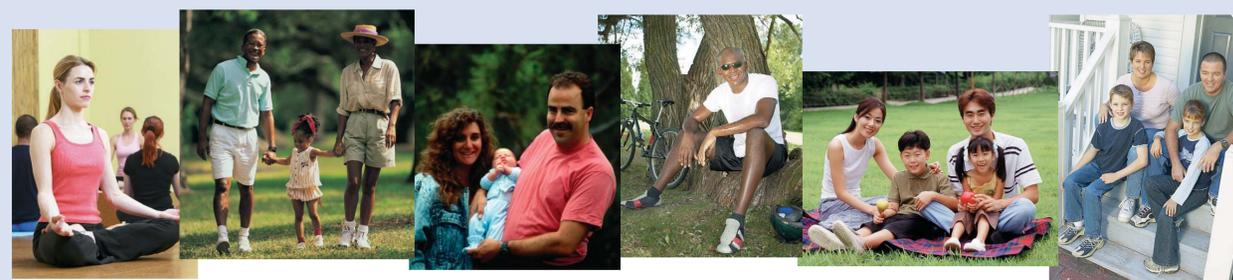
Children of persons with AD are a potentially high-risk group with respect to concerns about everyday memory performance (see quote). To our knowledge, this is the first study that focused on memory concerns in this group.

A control group with similar demographics, but without a family history of AD, will be needed to interpret the frequency of memory complaints in WRAP.

At this point, verbal learning differences related to subjective memory complaints are too small to be of clinical significance. However, memory complaints are one of the few statistically significant predictors of verbal memory scores in this relatively young healthy sample. We do not know if "worried well" AD children are detecting subtle difficulties in everyday memory that are being reflected in mildly lowered memory test performance, if self-doubts may have interfered with performance, or if outcomes are due to a common factor that remains to be identified.

A 4-year longitudinal follow-up is planned to determine if memory complaints are predictive of changes in memory performance.

"I sometimes wonder if I could be in the pre-stages of Alzheimer's. With the history I have [i.e., mother affected, as well as several other family members] I guess it is normal to wonder. I have been driving and forgotten where I was going, found things in strange places, and of course, have memory problems at times. Nothing real alarming....It is a horrible disease and affects so many." -WRAP participant



About 4 million people in the United States have been diagnosed with Alzheimer's disease.

19 million Americans say someone in their family has Alzheimer's disease.

By 2050 nearly 14 million people in the United States will be diagnosed with Alzheimer's disease.