

Early Life Health and Cognitive Function in Women 65+

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OBJECTIVE

Examine the association between early life health and cognitive deficiency among women aged 65 years and older.

BACKGROUND

Prevalence and the rate of cognitive decline in the elderly populations has increased in the United States and worldwide. Despite certain known links, much of causation is unknown.⁶ Dementia is the loss of cognitive functioning to such an extent that it interferes with a person's daily life.¹ Past studies have found correlations between dementia and household income level, education-level, and stress level. By examining a covariate associated with known risk factors, we hope to aid future research in early detection.

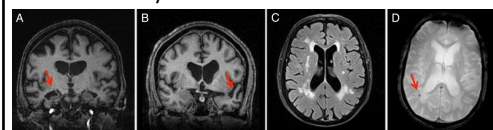


Figure 1: Four axial MRI scans (A, B, C, D) showing different levels of cognitive impairment. A shows a normal brain, B shows mild impairment, C shows moderate impairment, and D shows severe impairment.

METHODS

Linear regressions were conducted for each outcome and bivariate analyses were conducted to understand and minimize the impact of confounding.

Outcome was calculated from three different cognition tests, utilized as proxies for different aspects of brain function.

Cognition Test 1

- Clock Drawing Test Scores [calculated on a 0-5 scale: from 'not recognizable' to 'an accurate depiction of a clock']



Cognition Test 2

- Immediate Word Recall Score [calculated on a 0-10 scale, coded as 'number of words remembered']

Cognition Test 3

- Delayed Word Recall Score [calculated on a 0-10 scale, coded as 'number of words remembered']

Exposure was calculated from self-reported measure of early life health.

- Early Life Health [coded as 'Fair, Poor, Good, Very Good, Excellent' categories were combined to form fair & poor, and very good & excellent]

Data was derived from the National Health and Aging Trends Study (NHATS) dataset.

STUDY DESIGN

Combined Cohort
N=12,427

Female
N=7,340

Valid Exposure Data
N=6,529

Cognition Outcome 1
N=1,132

CLOCK DRAWING TEST

Cognition Outcome 2
N=1,228

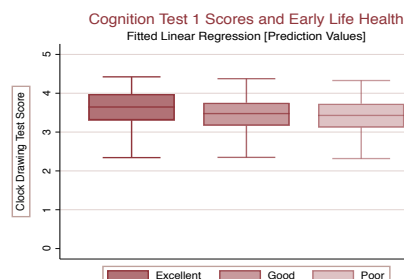
IMMEDIATE WORD RECALL

Cognition Outcome 3
N=1,208

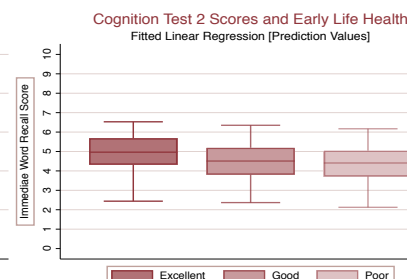
DELAYED WORD RECALL

COGNITION TEST SCORES AND EARLY LIFE HEALTH

CLOCK DRAWING TEST



IMMEDIATE WORD RECALL



DELAYED WORD RECALL

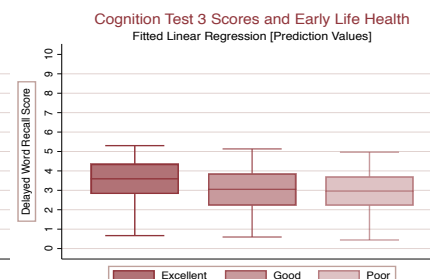


TABLE 1

Demographics & Covariates	Poor	Early Life Health Good	Excellent
Cognition Test			
CG1	3.59 (3.43-3.75)	3.64 (3.54-3.74)	3.82 (3.78-3.87)
CG2	4.84 (4.62-5.06)	4.78 (4.64-4.93)	5.34 (5.25-5.43)
CG3	3.39 (3.13-3.65)	3.50 (3.31-3.68)	4.01 (3.91-4.11)
Race			
White	300	753	3361
Black	0.68	0.73	0.83
Other	144	322	1034
Age			
65-75	0.12	0.12	0.08
75-85	69	128	394
85+	0.19	0.15	0.09
Education			
Did not Graduate HS	212	395	1976
Graduated HS	0.64	0.5	0.6
Some College	193	504	1814
Bachelor's +	0.26	0.34	0.29
Financial Well-Being	110	313	1012
Above Average	0.1	0.16	0.11
Average	174	397	1057
Below Average	0.24	0.23	0.15
Grew Up w/ Bth Parents	153	369	1471
Yes	0.31	0.30	0.29
No	125	308	1333
Marital Status	0.29	0.31	0.31
Married	61	134	918
Living w/ Partner	0.15	0.15	0.25
Separated	48	129	695
Divorced	0.08	0.12	0.16
Widowed	194	553	2493
Never Married	0.39	0.46	0.54
	267	519	1583
	0.52	0.41	0.3
	342	934	3918
	0.67	0.79	0.85
	172	270	878
	0.33	0.21	0.15
	147	368	1746
	0.4	0.39	0.45
	11	11	69
	12	27	76
	0.02	0.03	0.01
	82	134	617
	0.17	0.14	0.15
	232	624	2093
	0.35	0.4	0.33
	31	47	196
	0.05	0.03	0.04

RESULTS

After adjusting the model there remains a linear relationship between early life health and cognition test score in all three methods of measurement. In each case, the coefficient is negative. Among women 65+, those with poor early life health have .36 decrease in immediate word recall score compared to those with excellent early life health.

Additionally, among women 65+, those with poor early life health have .34 decrease in delayed word recall score and .12 decrease in clock drawing test score, compared to those with excellent early life health. In all cases, the effect was considered statistically significant based on an alpha=0.05.

DISCUSSION

The linear relationship displays a need for further research. Future analysis should focus on exploring the relationship between poor early life health and other associated risk factors. A longitudinal/prospective cohort study would be strongly advised, based on these results and considering limitations.

A major limitation of this study is the self-report of early life health status. The measure utilized does not provide much detail into the subject's health status.

REFERENCES

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