

Predictors of Cognitive Resilience in the Old-Old: An Observational Study Using Real-World EHR Data

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Among adults aged ≥75 years, psychiatric disorders were the strongest predictors of reduced cognitive resilience, whereas antihypertensive medication use was associated with greater likelihood of remaining free of cognitive disorders beyond age 90.

INTRODUCTION & METHODS		RESULTS	CONCLUSIONS																																														
Background - The population ≥75 years is the fastest-growing age group worldwide.¹ - Many individuals remain cognitively healthy into very late life. Objective - To identify demographic, clinical, laboratory, and medication-related predictors of cognitive resilience.² Study Design - Retrospective and observational study of EHR data (n=43,178) - Inclusion criteria: -Age ≥75 years -Dementia/MCI-free at baseline -≥2 visits ≥1 year apart Main Outcome Cognitive resilience: defined as no cognitive disorders by age 90. Predictors 81 clinical predictors evaluated (demographics, comorbidities, medications, laboratory values, vital signs, and healthcare utilization) Analysis - Multivariable Cox proportional hazards models - Hazard ratios inverted to Resilience Ratios (RR)		<table><caption>Predictors of Cognitive Resilience (Resilience Ratio 95% CI)</caption><tr><th>Predictor</th><th>Resilience Ratio (95% CI)</th></tr><tr><td>Chronic Pain</td><td>1.25 (1.15, 1.35)</td></tr><tr><td>BP Medications</td><td>1.15 (1.05, 1.25)</td></tr><tr><td>Albumin</td><td>1.10 (1.00, 1.20)</td></tr><tr><td>Hospital Visits</td><td>1.05 (0.95, 1.15)</td></tr><tr><td>Bun Median</td><td>1.00 (0.90, 1.10)</td></tr><tr><td>HbA1c</td><td>0.95 (0.85, 1.05)</td></tr><tr><td>Sodium</td><td>0.90 (0.80, 1.00)</td></tr><tr><td>Missing Tsh</td><td>0.85 (0.75, 0.95)</td></tr><tr><td>Anticoagulants</td><td>0.80 (0.70, 0.90)</td></tr><tr><td>Anxiety</td><td>0.75 (0.65, 0.85)</td></tr><tr><td>Missing Hdl</td><td>0.70 (0.60, 0.80)</td></tr><tr><td>Black Race</td><td>0.65 (0.55, 0.75)</td></tr><tr><td>Age</td><td>0.60 (0.50, 0.70)</td></tr><tr><td>Medicaid</td><td>0.55 (0.45, 0.65)</td></tr><tr><td>Stroke</td><td>0.50 (0.40, 0.60)</td></tr><tr><td>Alcohol Use Disorder</td><td>0.45 (0.35, 0.55)</td></tr><tr><td>Depression</td><td>0.40 (0.30, 0.50)</td></tr><tr><td>Bipolar Disorder</td><td>0.35 (0.25, 0.45)</td></tr><tr><td>ADHD</td><td>0.30 (0.20, 0.40)</td></tr><tr><td>Psychotropic Medications</td><td>0.25 (0.15, 0.35)</td></tr><tr><td>Schizophrenia</td><td>0.20 (0.10, 0.30)</td></tr><tr><td>Parkinson's Disease</td><td>0.15 (0.05, 0.25)</td></tr></table> - Psychiatric disorders were the strongest predictors of reduced cognitive resilience. - Antihypertensives was the only medication class independently associated with increased cognitive resilience. - Black race, Medicaid enrollment, stroke, & higher HbA1c were independently associated with lower resilience.	Predictor	Resilience Ratio (95% CI)	Chronic Pain	1.25 (1.15, 1.35)	BP Medications	1.15 (1.05, 1.25)	Albumin	1.10 (1.00, 1.20)	Hospital Visits	1.05 (0.95, 1.15)	Bun Median	1.00 (0.90, 1.10)	HbA1c	0.95 (0.85, 1.05)	Sodium	0.90 (0.80, 1.00)	Missing Tsh	0.85 (0.75, 0.95)	Anticoagulants	0.80 (0.70, 0.90)	Anxiety	0.75 (0.65, 0.85)	Missing Hdl	0.70 (0.60, 0.80)	Black Race	0.65 (0.55, 0.75)	Age	0.60 (0.50, 0.70)	Medicaid	0.55 (0.45, 0.65)	Stroke	0.50 (0.40, 0.60)	Alcohol Use Disorder	0.45 (0.35, 0.55)	Depression	0.40 (0.30, 0.50)	Bipolar Disorder	0.35 (0.25, 0.45)	ADHD	0.30 (0.20, 0.40)	Psychotropic Medications	0.25 (0.15, 0.35)	Schizophrenia	0.20 (0.10, 0.30)	Parkinson's Disease	0.15 (0.05, 0.25)	- Most adults ≥ 90 remained free of cognitive disorders, suggesting cognitive resilience even among the oldest-old. - Large-scale real-world EHR data could be used to identify clinical phenotypes associated with healthy cognitive aging and generate hypotheses for future preventive interventions.³
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