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Is pleased to announce

**Alzheimer’s Disease Progression: Exploring the Impact of Cognitive Reserve on Cognitive Decline**

Public and Oral Defense of the Dissertation

**Background:** Alzheimer's disease (AD) is a progressive disease that results in brain cell death and cognitive decline. It is the 6th leading cause of death in the US and number one cause of dementia. AD progression is categorized into 3 stages: mild, moderate, and severe. There is no cure, and scientists have yet to determine ways to prevent or slow down its progression. The Cognitive Reserve (CR) theory poses that constant brain activity earlier on in life later helps to deter any pathological changes occurring in the brain, therefore delaying the onset of disease symptoms. We used a CR tool to quantify CR in AD patients and explored how CR was related to AD progression.

**Objectives:** (1) Determine the reliability and validity of the Cognitive Reserve Index questionnaire (CRIq) in AD patients; (2) Determine the reliability of using Epic extracted data to stage AD (3) Determine if cognitive reserve is associated with the progression of AD.

**Methods:** We did primary data collection using a cross-sectional survey, the CRIq, to quantify CR. Health data was extracted from 2 electronic medical record databases (Epic and MatrixCare). Correlations were used to determine the reliability and validity of the CRIq. ANOVA and multivariable linear regressions were used to determine relationships between CR and dementia progression.

**Results:** The total sample size recruited was 90 participants. Reliability was tested in 34 participants. A Pearson correlation coefficient of 0.89 (p < 0.001) showed a strong positive correlation. Validity of the CRIq was determined in 33 participants, and a Pearson correlation coefficient of 0.30 (p = 0.10) indicated an insignificant weak positive correlation. After collapsing the moderate and severe dementia groups to compare to the mild dementia group, there was a significant difference in mean CR score (mild mean (SD) = 131(15.0), moderate/severe mean (SD) = 123(20.6), p = 0.05). After controlling for physical activity, for every unit increase in CR score, the number of days for transitioning from mild to severe dementia increased by 34 days (β = 33.94, 95% CI: 8.07, 59.81, p = 0.01).

**Implications for public health:** Gaining a better understanding of how CR contributes to AD progression will help with intervention development for slowing symptom onset, progression, and extending patient quality of life.

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12:00 PM-2:00 PM

**Zoom**: https://slu.zoom.us/j/967800856