**Title:**

Phenome-wide search of cognitive reserve: using three large scale cohort studies

**Author:**

Anqing Zheng

**Possible CATSLife CoAuthor(s)**

Chandra Reynolds, Robin Corley, Dan Gustavson, Naomi Friedman, Sally Wadsworth

**Description:**

Cognitive reserve (CR) is defined as the adaptability of cognitive processes after exposure to pathology or other disruptive adversity. Operationally, CR moderates the association between cognitive adversity factors and cognitive status. Researchers have relied on formative socio-behavioral proxies to examine the development and unfolding of CR. To put it differently, elements that represent experiences contributing to CR development are considered proxies, such as educational attainment and physical activity. As of today, CR proxies are limited to a handful. Moreover, only a few studies took a life course perspective in understanding the life stages during which specific CR proxies are likely to be more prominent. Using three large-scale studies tapping on different life stages (ABCD: childhood, CATSLife: adulthood, VETSA: mid to late-adulthood), we will investigate over 100 phenotypes on their potential role as CR proxies. We will use cross-validated machine learning models to conduct an atheoretical comparison across variables. We also plan to apply within-family design and Mendelian randomization to examine the direction of prediction between CR proxies and cognitive functioning. Pioneer work on ABCD data was presented as a poster at BGA 2022.

**Plans:**

Use ABCD, CATSLife, VETSA data

**Process:**

Analyses begun

**Start:**

2022/04

**Last:**

2022/08