Request #: 615 - PSY - Thesis

An Examination of Traumatic Brain Injury and Genes for Neurotrophins and Apolipoprotein E in Predicting Cognitive Functioning in Older Adults: The Cache County Study

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Background

A history of TBI is associated with cognitive decline and dementia in late-life. Neurotrophins BDNF and NGF appear to play a role in the brain's response to injury, with human and animal research showcasing an immediate upregulation of BDNF and NGF levels in the brain. The role of APOE genotype in short term cognitive outcomes following a TBI is inconclusive. However, research supports that APOE genotype influences the rate of cognitive decline in late life and increases the risk for AD. Moreover, in those with a history of TBI, there is even greater risk of AD among APOE 4 carriers.

Sample

Extant Data from Cache County Study on Memory in Aging which includes a total of 5,092 permanent residents of Cache County, Utah aged 65 years or older in 1995.

Dementia-free at Wave 1 + completed Head Injury + not missing APOE or BDNF/NGF genotypes

Hypothesis

1. Is history of TBI (none, one, two or more) associated with the rate of cognitive decline in older adults? Hypothesis: yes with increased history associated with greater decline
2. Are characteristics of TBI (recency of TBI, age at last TBI, or severity) associated with the rate of cognitive decline in older adults? Hypothesis: yes, with most recent and increased severity associated with greater decline.
3. Does a history of TBI (or its characteristics) interact with APOE genotype in the association with the rate of cognitive decline in older adults? Hypothesis: yes with APOE4 associated with greater decline
4. Does a history of TBI (or its characteristics) interact with SNPs related to BDNF/NGF [rs2072446 (NGF/BDNF receptor p75), rs2289656 (BDNF receptor trkB), rs56164415 (BDNF C270T), and rs6265 (Val66Met)] in the association with the rate of cognitive decline in older adults? Hypothesis: yes (specifically Val66Met and possibly C270T) associated with greater decline

Progress

Some SPSS syntax combining head injury variables.

Request

Assistance combining data sets, combining variables, and "wrangling" data.

Timeline

Hopefully get data cleaned enough to use in an end of a semester project (Dec 2022). Whole project finished and defended by May 2023.