**Background**

This report summarizes a longitudinal cohort study following healthy, community dwelling, and cognitively intact elders. Participants were enrolled and followed up with annually for cognitive assessment to examine memory changes. There were 187 participants that completed at least three animal category for fluency tests and were included in the analysis. Investigators collected additional information such as, gender, age, Hollingshead scale for SES, and Clinical Dementia Rating scale to determine MCI diagnosis. Short-term this study aimed to define noticeable rates of decline using memory tests and compare to the normal aging process. Long-term the goals are to develop biomarkers for the rate of memory decline.

The primary hypotheses for this report were that rate of memory decline will be different for participants with a MCI diagnosis and that the rate of decline accelerates four years prior to MCI diagnosis. The statistical hypotheses are as follows: 1) The animal category fluency scores will decline significantly different for participants diagnosed with an MCI compared to those with the normal aging process. 2) Four years prior to the MCI diagnosis the rate of decline splines and significantly changes for those with MCI.

**Methods**

There was minimal data management for this report. Univariate descriptive statistics were used to examine variables for outliers, extreme values, and missing-ness. Visit number and animal total were counted to determine average visits. Participants that had less than three animal scores were removed from the analysis. Bivariate descriptive statistics were performed to determine demographic differences between MCI groups at first visit and five years using chi-squared (gender) and independent t-tests (age, SES, average years in study). Spaghetti plots were created to examine the rate of animal test decline per participant as they age by MCI group.

A mixed linear regression analysis was used to differentiate the rate of memory decline by MCI status. This outcome is a repeated multiple times by each participant. Examination of spaghetti plots for the animals outcome showed individual intercepts and slopes for each participant.

**Results**

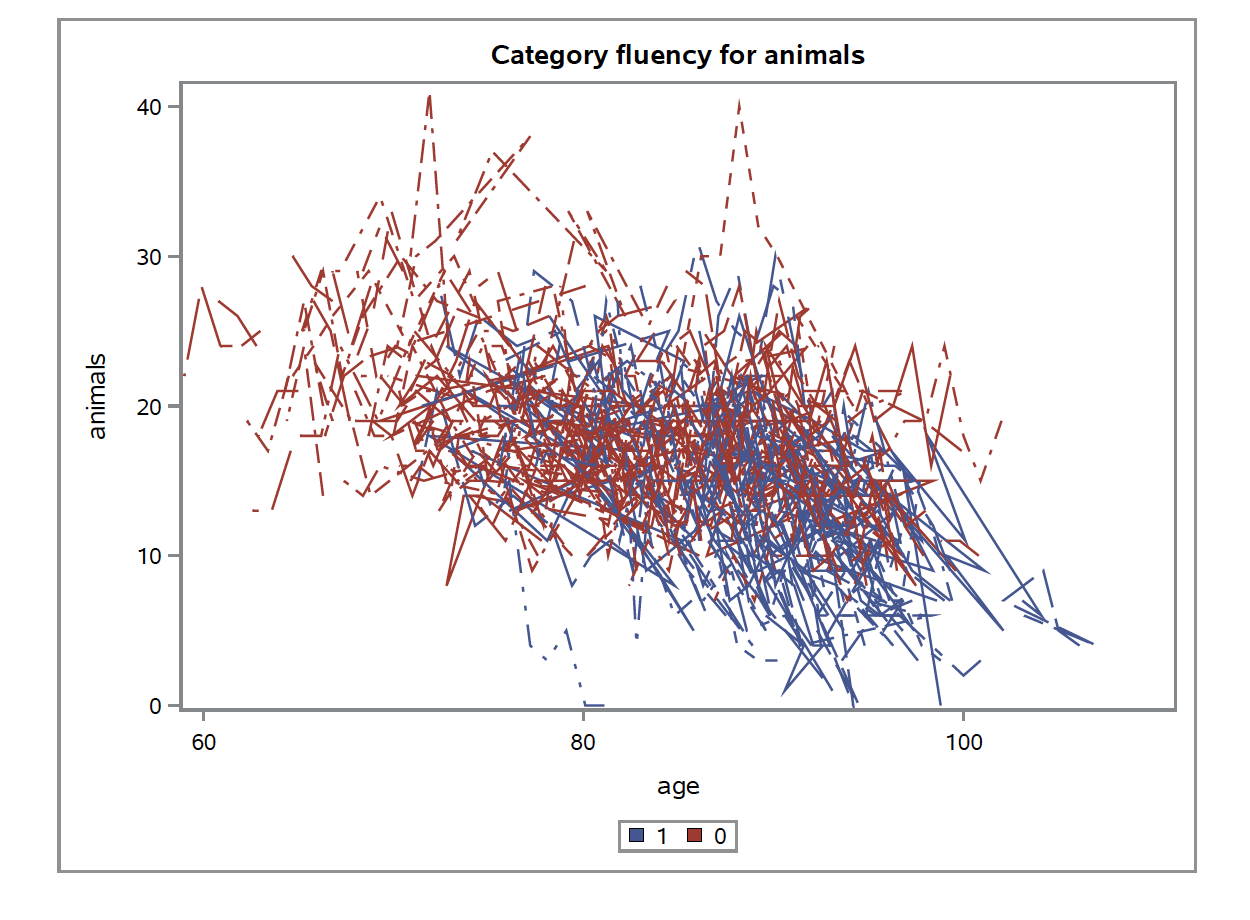
Table 1 has demographic differences between MCI group at first visit and five years into the study. Those who developed a MCI diagnosis entered the study at an average older age (94 [6.21]) compared to those who did not (84[9.62]). There were more females (68%) than males in the MCI group compared to the controls (50%). There were no demographic changes by year five. Graph 1 shows the spaghetti plot of each individual’s animal memory score as they age. The graph identifies a downward trend with age but the MCI group (1) has average lower scores compared to no MCI (0).

**Appendix**

**Table 1:** MCI group Demographics at first visit and five years

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **No MCI n=119** | | **MCI/Dementia n=68** | |  |
|  | **First visit** | | | |  |
| Variable | Mean | Std Dev/% | Mean | Std Dev/% | Pr > |t| |
| Age | 84.84 | 9.62 | 93.56 | 6.21 | <.0001 |
| SES | 49.66 | 10.86 | 48.74 | 13.07 |  |
| Gender- Male | 59.00 | 49.58% | 23.00 | 33.82% | 0.0367 |
| Age MCI Onset | N/A | N/A | 90.54 | 4.87 |  |
| Average Visits | 10.74 | 7.18 | 10.96 | 6.76 | 0.4071 |
|  | n=56 | | n=20 | |  |
| Animal Score | 15.89 | 5.47 | 8.55 | 5 |  |
|  | **Five years** | | | |  |
| Age | 78.61 | 8.84 | 86.45 | 5.9 | <.0001 |
| SES | 49.65 | 10.86 | 48.73 | 13.06 | 0.6057 |
| Gender- Male | 59 | 49.58% | 23 | 33.82% | 0.0367 |

**Graph 1:** Spaghetti Plot of Animal Memory Scores with Age and MCI status

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