Continuous Picture Naming Performance in Older Adults

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Introduction

- Tasks involving speech and language have proven to be valuable tools in the assessment of neurodegenerative diseases and cognitive decline.
- The predictive power of continuous picture naming tasks for dementia is still an ongoing area of research.
- Articulating the correct name for a common object shown in a picture is a quick and efficient cognitive task.
- Notably, deficits in naming pictured common objects have been associated with various degrees of cognitive impairment in people with dementia
- Research suggests that picture naming tasks may be utilized to investigate the extent of decline in lexical-semantic abilities among individuals diagnosed with dementia

Methods

- Participants:
  - 377 healthy aging adults (47.5% female)
  - 13.3% Asian, 17.8% Black, 58.9% White, 9.8% Other/Mixed Race, 7.4% Hispanic/Latinx
  - Age: 52-89 y.o. (Mean = 70.50; SD = 6.47)
  - Education: 8-20 years (Mean = 15.3; SD = 2.1)

- Continuous Picture Naming (CPN) from California Cognitive Assessment Battery (CCAB):
  - Automated set of cognitive tests & psychological questionnaires
  - Remote administration, longitudinal testing
  - Includes automated scoring and consensus automated speech recognition (CASR) to transcribe responses on verbal tasks (e.g., continuous picture naming)

- Procedures:
  - Name the pictured objects as quickly as possible
  - Testing sessions administered remotely with audio/visual supervision and assistance via web-based examiner interface.
  - Automated transcription of verbal responses.
  - Automated instructions and practice trials.
  - Battery was administered twice within a week and then once after six months and again at 18 months.
  - Reaction times, word onset latency, response accuracy, error types, and speech samples were collected and analyzed
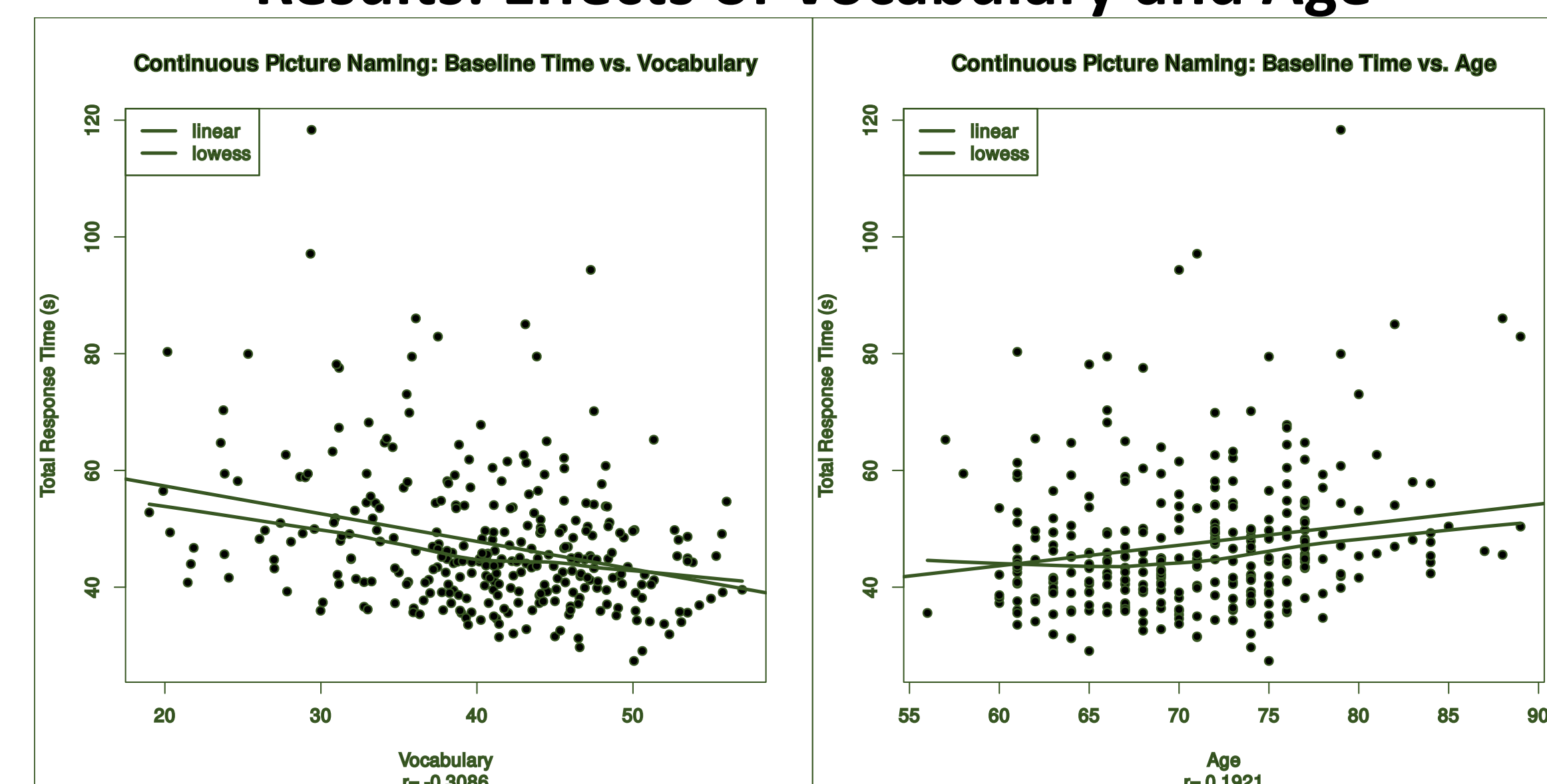
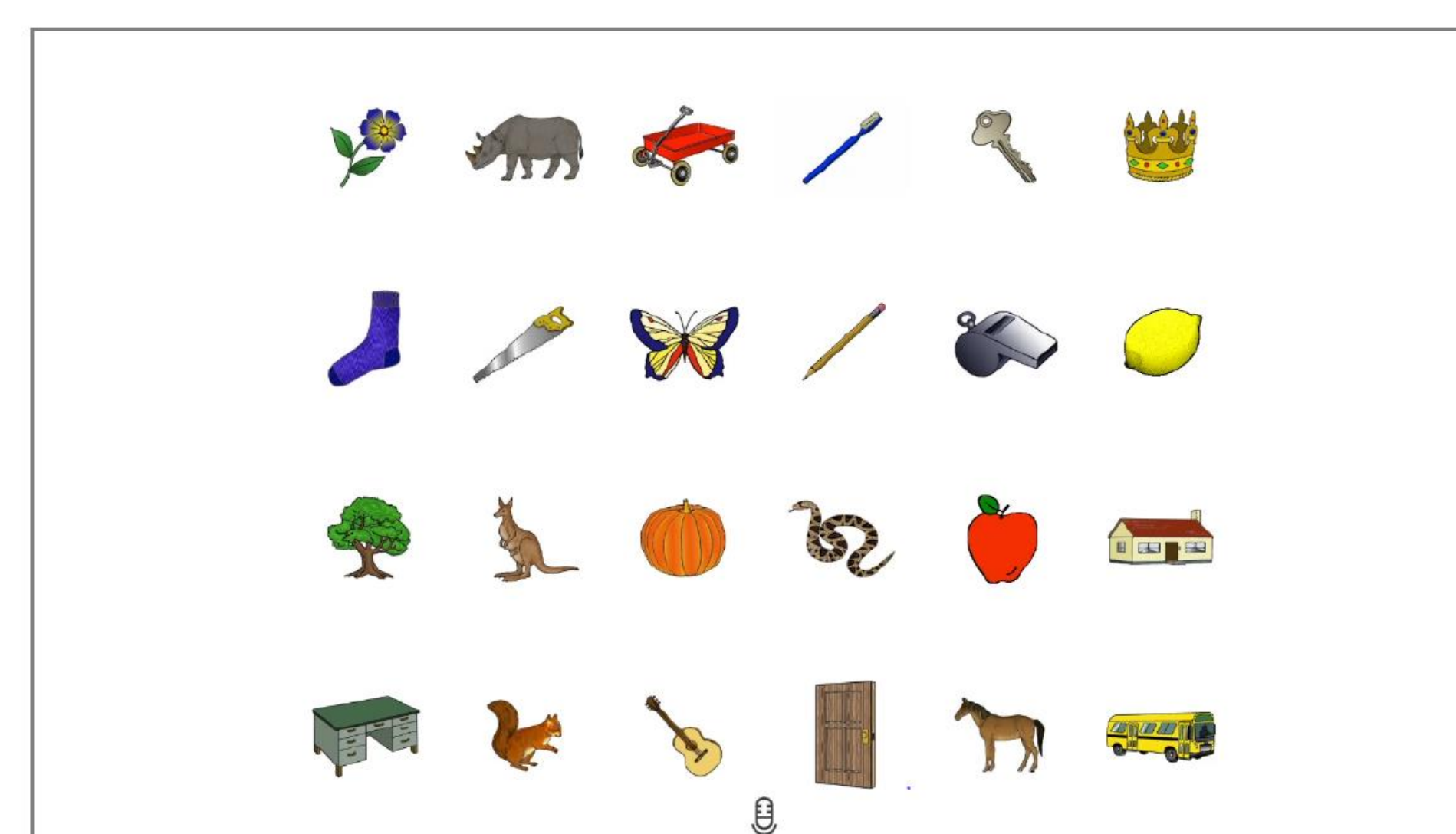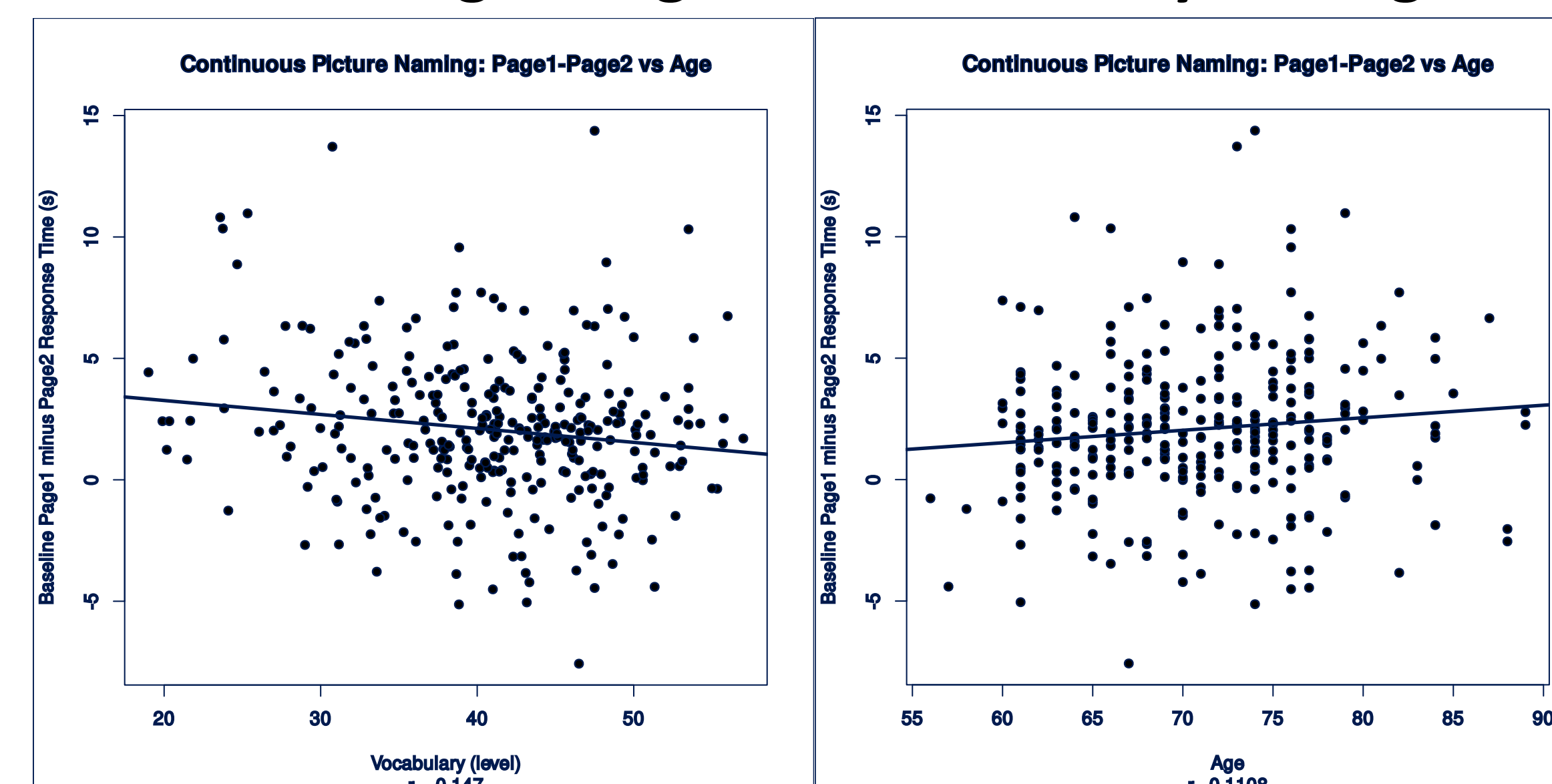### Results: Test-Retest Comparison of Total Response Times
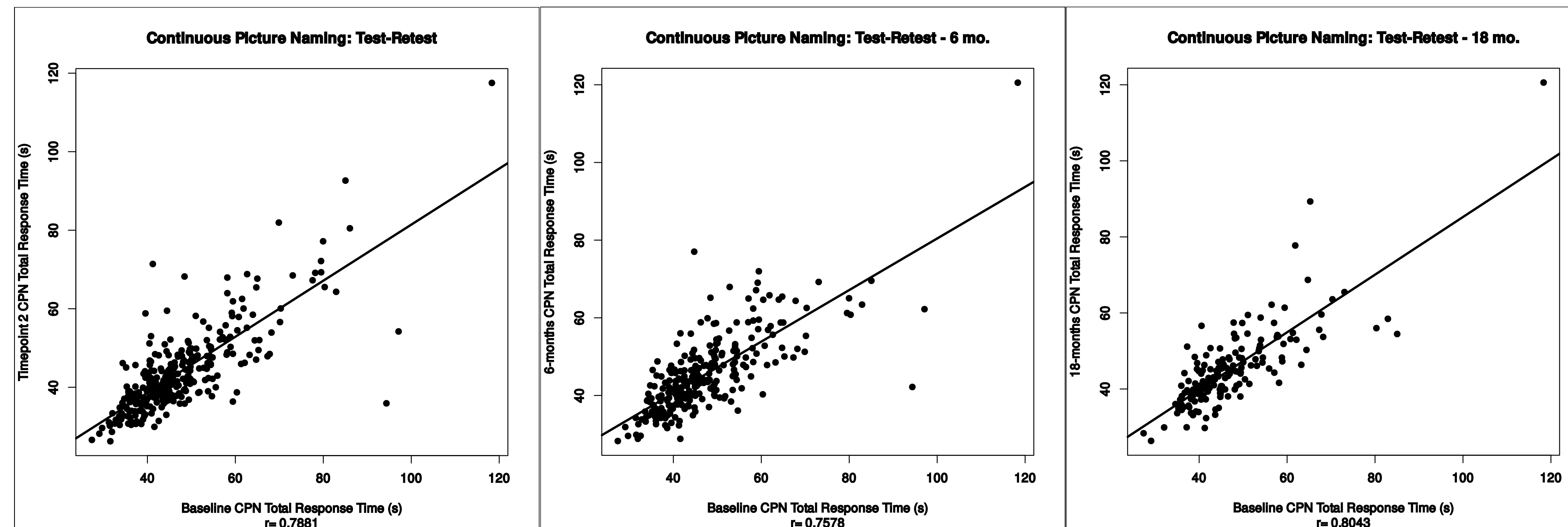
Results: Alternate Form Comparison
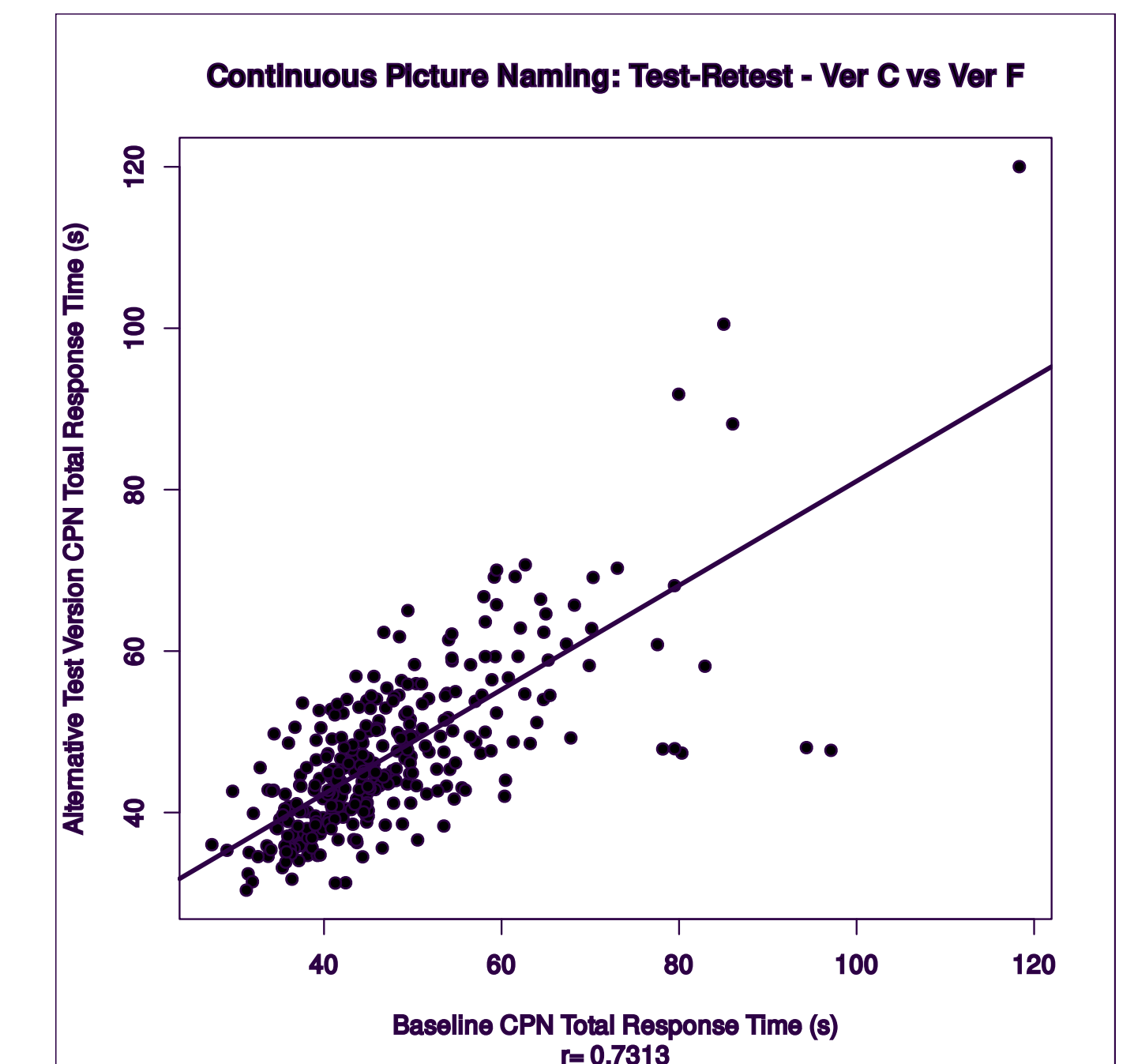
Results: Effects of Vocabulary and Age

Results: Page1-Page2 vs. Vocabulary and Age

Screenshot of a CCAB test station while a participant is performing the Continuous Picture Naming trial using verbal response. Page 1 of the test is shown. Page 2 uses the same items but in a different order.

Results

- Response times and accuracy on CPN were collected and analyzed to examine the effects on age and vocabulary level as well as test-retest reliability and alternate form reliability.
- The analysis revealed that age and vocabulary level were significantly associated with the task's performance.
- CPN performance demonstrated good test-retest reliability at the six-month (r=.76, p<.001) and 18-month (r=.80, p<.001) follow-ups.
- Moreover, a significant relationship was observed between the total task time and the number of errors: Pearson r=0.50, p<0.001

Discussion

- Overall, the CPN task demonstrates good reliability and consistency in tracking picture naming performance.
- The use of an alternate form of the CPN task demonstrates strong consistency between the two test versions.
- Variables such as vocabulary level and age impact the performance on this measure.
- Ongoing evaluation of the CCAB will aid in assessing cognitive impairments in aging populations.
- While naming tasks and language impairments can be associated with dementia or cognitive decline, other factors (e.g., fatigue, normal aging) can contribute to language difficulties.

References

[1] Cuetos, F., Gonzalez-Nosti, M., & Martínez, C. (2005). Aphasiology, 19(6), 545-557. https://doi.org/10.1080/02687030544000010