Inter- and Intra-Individual Variability in Non-Linguistic Attention in Aphasia

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OBJECTIVES

1. How does task difficulty/complexity affect reaction time in PWA and in age-matched controls?

2. How does intra-individual variability affect reaction time in PWA and in age-matched controls?

Participants

- 18 individuals with chronic aphasia from a unilateral stroke (66, mean age = 63.4, SD = 7.5)
- 5 age-matched controls (39, mean age = 65.3, SD = 5.9)

METHODS

- Experimental Task:
  - Five conditions, each assessing a different type of non-linguistic attention.
  - Participant was instructed to press a key to indicate whether the target was on the left, on the right, or absent.
  - For Condition 5, the target was left/right congruency between the two stimuli.

RESULTS

- Post-hoc analyses for the PWA group revealed:
  - a complexity effect: Condition 3 > Condition 1; Condition 4 > Condition 2 (p < .05)
  - a modality effect: Condition 4 > Condition 3; Condition 2 > Condition 1 (p < .01)
  - Condition 5 vs. Condition 4: no significant difference.

- Post-hoc analyses for the control group consistently revealed:
  - a complexity effect: Condition 3 > Conditions 1, 2, and 3 (p < .001)
  - an IIV effect (COV = .067).

CONCLUSIONS

- On a non-linguistic attention task, increased task complexity elicits slower response times for both PWA and age-matched controls.

- Increased task complexity also elicits a higher degree of between-session intra-individual variability for PWA (but not for controls).

- This suggests that PWA may have difficulty maintaining consistent attention levels from day to day, particularly in situations that require more complex types of attention (e.g., when asked to attend to auditory information while visual information is also present), a finding which could have implications for prognosis in therapy.

- Additionally, PWA were found to exhibit a higher degree of between-session intra-individual variability than controls overall.

- Within the PWA group, several different patterns of intra-individual variability were found, suggesting inter-individual variability within this group. One subgroup was characterized by high variability on both selective auditory and auditory/visual/integrational attention, another subgroup was characterized by high variability on selective visual attention, and a third subgroup exhibited generally lower variability.

- This is the first demonstration of between-session intra-individual variability in PWA on a purely non-linguistic task.

- Future studies should directly investigate the link between intra-individual variability in non-linguistic attention and treatment outcomes.

SELECTED REFERENCES


