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

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Inter- and Intra-Individual Variability in Non-Linguistic Attention in Aphasia
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RESEARCH QUESTION 1: How does task complexity/difficulty differ on a non-linguistic attention task impact reaction time in PWA and in age-matched control participants?

RESEARCH QUESTION 2: How does task complexity/difficulty on a non-linguistic attention task impact between-session individual variability (SV-IV) in reaction time in PWA and in age-matched control participants?

RESEARCH QUESTION 3: What kinds of individual variability in SV-IV are present within the PWA group?

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

Methods
- 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 L/R congruency between the two stimuli.

Results
- A 2 x 5 (Group x Condition) ANOVA revealed a significant main effect of Group (F1, 105) = .04, p = .05), such that PWA controls COV. The effect of Condition on COV was then analyzed separately for each group:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Session 4</th>
<th>Session 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RT</td>
<td>RT</td>
<td>RT</td>
<td>RT</td>
<td>COV</td>
</tr>
<tr>
<td>2</td>
<td>RT</td>
<td>RT</td>
<td>RT</td>
<td>RT</td>
<td>COV</td>
</tr>
<tr>
<td>3</td>
<td>selective auditory RT</td>
<td>RT</td>
<td>RT</td>
<td>RT</td>
<td>COV</td>
</tr>
<tr>
<td>4</td>
<td>auditory/visual integrational RT</td>
<td>RT</td>
<td>RT</td>
<td>RT</td>
<td>COV</td>
</tr>
<tr>
<td>5</td>
<td>RT</td>
<td>RT</td>
<td>RT</td>
<td>RT</td>
<td>COV</td>
</tr>
</tbody>
</table>

Post-hoc analyses for the PWA group revealed:
*Condition 4 > Condition 1 (p < .05)**
*Condition 5 > Condition 3 (p < .01)

CONCLUSIONS
- On a non-linguistic attention task, increased task complexity elicits slower response times for both PWA and age-matched control.
- 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 over.
- Within the PWA group, several different patterns of intra-individual variability were found, suggesting that individual variability within this group. One sub-group was characterized by high variability on both selective auditory and auditory/visual/integrational attention, another sub-group was characterized by high variability on selective visual attention, and a third sub-group exhibited generally lower variability.
- This is the first demonstration of between-session intra-individual variability in 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