Alexithymia and Executive Functioning During Go/No-Go Inhibitory Test

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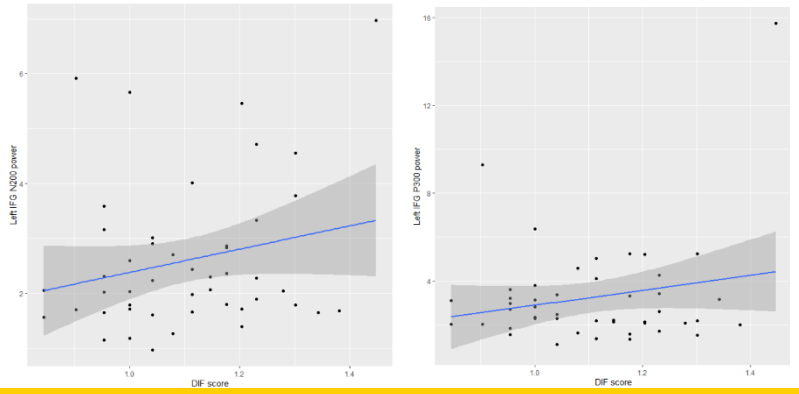
Introduction

- **Alexithymia:** "no words for feelings," personality trait, disrupted emotional awareness and emotion processing
  - Difficulty identifying **(DIF)** and describing **(DDF)** feelings
  - External oriented thinking **(EOT)**
- **Executive Functioning (EF):** memory, thinking, **inhibition**
  - Anterior cingulate gyrus (ACC), inferior frontal gyrus (IFG), superior frontal gyrus (SFG) = regions for inhibitory control
  - Older people show greater activation in these regions (compensatory)
- Prior research supports correlation between alexithymia (DIF) and poorer EF (memory) in emotive and non-emotive contexts
- **EEG:** N200 window (186-350ms) conflict processing, P300 window (340-616ms) performance evaluation
- **Question: is there a correlation between higher DIF and regional activation during N200/P300 processes?**

Results

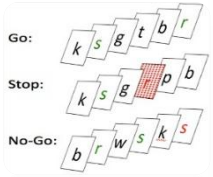
Log-Normalized DIF trending with L-IFG in N200 and P300 windows

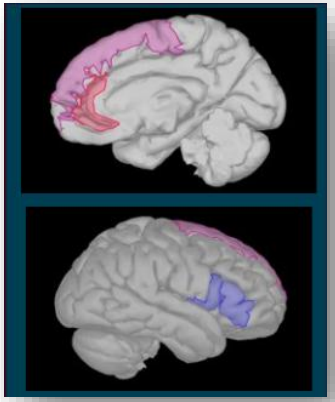


Methods

Participants

Participant Characteristics (N=49)	*M*(SD)
Age	79.61 (4.7)
Sex (% Female)	71.4%
Education	14.81 (2.3)





Measures

- **Toronto Alexithymia Scale – 20 (TAS-20)** 20 items, 3 facets (**DIF**, DDF, EOT) with focus on DIF
- **Levels of Emotional Awareness Scale (LEAS)** - 20 vignettes about emotive situations with narrative responses for self and other
- **Go/No-go Task**
  - Go task: trained response to specific letters in serial stream
  - No-go task: alternate response to trained stimuli, selective inhibition
- **EEG and Source Localization:**
  - EEG measures event related potentials (ERPs) during no-go task
  - SL pinpoints regional activation during N200 and P300 windows via minimum norm imaging, head models using OpenMEEG

Discussion

- Greater activation in L-IFG with higher DIF, likely influenced by outlier
- Cognitive deficits with DIF might be associated with reduced ability to identify emotions
- Neural activity becomes more bilateral with age, so activation in L-IFG suggests to compensatory activity in older adults as R-IFG is primarily associated with inhibitory control
- DIF may exacerbate effects of age-related neurodegeneration contributing to age-related cognitive decline
- Next steps: investigate relationship between DIF and IFG in younger adults

References

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